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#### ABSTRACT

The worksheets have been developed for use with any production occupational or work experience record book for high school vocational agriculture programs. Separate units have been developed for each of 11 areas in ornamental horticulture, so the student and teacher can select the appropriate one, or several, for the experiences planned by the student. The areas are: flower shop employee; greenhouse crops; landscape maintenance and establishment; nursery production; field grown crops; field grown trees; field grown shrubs; container grown plants; and turfgrass maintenance, establishment, and production. Within each area, the five following record sheets are provided: approved practices, goals, efficiency factors, cost accounting or employment achievement, and analysis. (Author/KJ)

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#### APPENDIX. E

# SUPERVISED OCCUPATIONAL EXPERIENCE REGORD FORMS for ORNAMENTAL HORTICULTURE

(REVISED)

1974

#### MASTER SET

Flower Shop Employee
Greenhouse Crops: Potted Plants:
Greenhouse Crops: Cut Flowers
Outdoor Flower Crops
Landscape Maintenance and Establishment
Nursery Production: Field Grown Crops
Nursery Production: Field Grown Shrubs
Nursery Production: Container Grown Plants
Turfgrass Maintenance, Establishment, Production

Department of Agricultural Education
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The Pennsylvania State University
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Pennsylvania Department of Education
Harrisburg, PA

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# SUPERVISED OCCUPATIONAL EXPERIENCE RECORD FORMS for ORNAMENTAL HORTICULTURE (REVISED)

1974

#### MASTER SET

Flower Shop Employee

Greenhouse Crops: Potted Plants

Greenhouse Crops: Cut Flowers

Outdoor Flower Crops

Landscape Maintenance and Establishment

Nursery Production: Field Grown Crops

Nursery Production: Field Grown Shrubs

Nursery Production: Container Grown Plants

Turfgrass Maintenance, Establishment, Production

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Pennsylvania Department of Education
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#### Foreword

These record forms have been developed for use with any production occupational or work experience record book for high school vocational agriculture programs.

Separate units have been developed for each of eleven areas in ornamental horticulture, so the student and teacher can select the appropriate one, or several, for the experiences planned by the student. The areas are indicated in the table of contents. Within each area, the five following record sheets are provided: (1) Approved Practices, (2) Goals, (3) Efficiency Factors, (4) Cost Accounting, or Employment Achievement, and (5) Analysis.

#### Contents

Flower Shop Employee		•	•	•		Α	1-10
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Turturass Maintenance, Establishment, Production						F	1-28

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Supervised Occupational Experience Record Forms

for

Ornamental Horticulture

(REVISED)

1974

FLOWER SHOP EMPLOYEE - A 1-9

Department of Agricultural Education The Pennsylvania State University in cooperation with Bureau of Vocational Education Pennsylvania Department of Education



#### Using The Forms

The five record sheets included in this unit are intended to be used with any production, occupational or work experience record book for high school vocational agriculture programs.

Approved Practices gives specific references to production or service practices that are generally accepted in industry as giving superior results if appropriately applied. A particular business firm might use variations of some of these practices because of unusual local conditions. Students carrying out production projects should find these references especially helpful. Students in agricultural production or services work experience will find them useful quides to what will be expected of them on the job.

Goals are stated in relation to efficiency. They are based on the comparisons of superior achievement with average achievement. The goals given are considered realistic in terms of production enterprises or work experience in production or services occupations. Successful businesses rank somewhere between "average" and "superior" in their goals.

The <u>Efficiency Factor</u> form provides a means for giving a numerical score on goal achievement. It is equally applicable to production enterprices, production occupations or service occupations. The scores are used as one base for comparisons in the judging of record books in regional and state record book contests.

Cost Accounting record forms serve as a guide for calculating the costs and profit in a production enterprise or a production experience.

These figures, together with production figures are used in the analysis of the enterprise.

The Employment Achievement form is used in place of the Cost Accounting



form when the experiences involve employment in a service occupation rather than production occupation.

The <u>Analysis</u> form should be marked at the beginning of the experience program with a 'G" to indicate the goal that a student has set for himself. The same scales are marked with an "A" to indicate actual achievement at the end of the experience program. The analysis sheet provides for an evaluation of the approved practices used and their relationship to production or service and income.

Example of the Use of Efficiency Factors and Production Goals

The <u>Pennsylvania Agricultural Production Program Record Book</u> provides space for the student to list appropriate efficiency factors for each productive enterprise. In the example below, the figures in the column "Local Efficiency Standards" will have been obtained through group study by the students with the help of the teacher. An analysis of records of similar enterprises completed in previous years by students in the same school will also serve as a quide.

PRODUCTION GOALS:	Potted Chr	ysanthemum	ERPRISE	
Efficiency Factor L	ocal Efficie Average	ency Standards Superior	Student Goal	Student Achievement
Percent marketed	95%	100%	100%	97%
Number of 6" pots per 100 sq. ft. of bench sp	ace 75	100*	100	98
Number of blooms per 6" pot	18	24	24	22
Percent of pots in 16" to 18" height range in- cluding pot marketed	90%	95%	95%	92%

<sup>\* (</sup>optimum number)

# Approved Practices Flower Shop Employee

#### TASKS Ref. B Ref. A p. 171 - 178 p. 118 - 122 Retail Selling p. 214 - 222 p. 118 - 122 2. Taking Orders p. 47 - 55 p. 129 Shop Display 3. p. 271 - 371 53 - 104 Floral Designing 4. p. 223 - 230, p. 13 - 52 Material Handling 380 - 387 p. 231 - 237 p. 133 Delivering б. Personal Appearance and p. 127 - 128 p. 119 Personality p. 125 - 126, 133 p. 238 - 270 Record Keeping p. 132 - 137 p. 112 - 113 Assist in Purchasing

- A. RETAIL FLOWER SHOP OPERATION AND MANAGEMENT P.S.U.
- B. THE RETAIL FLOWER SHOP PFAHL



#### Goals Stated in Relation to Efficiency

#### Flower Shop (Employee)

	Efficiency Factors	Efficiency Standards		
		Average	Superior	
١.	Sales Concluded	95%	100%	
2.	Accuracy in Orders and Records	98%	100%	
3.	Customer Complaints	2%	1%	
4.	Accuracy Within Design Specifications	95%	100%	
5.	Maximum Utilization of Materials	95%	100%	
6.	Satisfactory Deliveries	95%	100%	
7.	Customer Satisfaction	Good	Excellent	
8.	Employer Satisfaction	Good	Excellen†	

A-6
9

Contest	Efficiency Factors	Min. Efficiency Level for Determin Score (average)		Det
Flower Shop (Employer)	a. % Sales conclude	95 <b>%</b> ed	100%	.2 poi
	b. % Accura	acy in 98% nd records	100%	.5 poi
	c. % Compla	aints 2%	1 %	.5 poi
	d. Accuracy design s	/ within 95% specification	100%	.2 poi
	· ·	um utiliza- 95% materials	100%	2 poin
	f. % Satist Deliveri		100%	2 poin
	g. Custome: faction	r satis- Good	Excellent	
	h. Employe faction	r satis- Good	Excellent	
·		r satis- Good	Excellent	

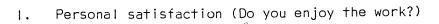


	ciency Le actors	Min. Efficiency evel for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)	Method of Determining Score
а.	% Sales concluded	95%	100%	.2 points for every 1% over 95%
b.	% Accuracy in order and reco	98% rds	100%	.5 points for every 1% over 98%
с.	% Complaints	2%	<b>%</b>	.5 points for every 1% under 2%
d.	Accuracy within design specific		100%	.2 points for every 1% over 95%
е.	% Maximum util tion of materia		100%	2 points for every 1% over 95%
f.	% Satisfactory Deliveries	95%	100%	2 points for every 1% over 95%
g.	Customer satisfaction	- Good	Excellent	
h.	Employer satisfaction	- Good	Excellent	



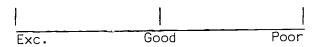
#### Employment Achievement

#### Flower Shop Employee

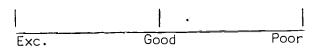




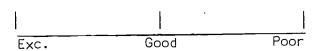
2. Monetary increases (after 3 to 6 months)



5. Fringe benefits (insurance, retirement, other)



4. Opportunity for advancement (in I to 5 years)



 Variety of educational experience according to students occupational goals.





# Analysis of Flower Shop Employee Experience

Name		Date Started	Ended
School		Total Hours	
County	·	Income Per Yea	r
Employer_			
Address			
	Poor	Average	Superior
1.	90%	95% Sales Concluded	100%
2.	96%	98% Accuracy in orders and record	100% ds
3.	4%	2% Complaints	1%
4.	90%	95% Accuracy within design specific	100%_ ations
5.	90%	95% Maximum utilization of materi	100% als
6.	90%	95% Satisfactory deliveries	100%





	Poor	Av	erage	Super	ior	
7.	Poor		Sood satisfaction	Excell	<u>ent</u>	
8.	Poor		Good satisfaction	Excell	en†	
Place a reach line	ed "G" on e scale at t	each line scale the efficiency	e at the goal achieved.	set. Plac	e a red	"A" on
Practices limited i		tions which	Practices a contributed			
<del></del>					13	
						<del></del>

Prepared by The Department of Agricultural Education, The Pennsylvania State University, in cooperation with the Pennsylvania Department of Education and Pennsylvania Vocational Agricultural Teachers.

1974



# Supervised Occupational Experience Record Forms for Ornamental Horticulture

GREENHOUSE CROPS - POTTED PLANTS - B 1-31 .

Chrysanthemum B 2-8
Poinsettia B 9-13
Easter Lily B 15-19
Geranium B 21-25
Bedding Plants B 27-31

To be used with any production, occupational or work experience record book.

Department of Agricultural Education
The Pennsylvania State University
in cooperation with
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Pennsylvania Department of Education



#### Using The Forms

The five record sheets included in this unit are intended to be used with any production, occupational or work experience record book for high school vocational agriculture programs.

Approved Practices gives specific references to production or service practices that are generally accepted in industry as giving superior results if appropriately applied. A particular business firm might use variations of some of these practices because of unusual local conditions. Students carrying out production projects should find these references especially helpful. Students in agricultural production or services work experience will find them useful guides to what will be expected of them on the job.

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The <u>Efficiency Factor</u> form provides a means for giving a numerical score on goal achievement. It is equally applicable to production enterprises, production occupations or service occupations. The scores are used as one base for comparisons in the judging of record books in regional and state record book contests.

<u>Cost Accounting</u> record forms serve as a guide for calculating the costs and profit in a production enterprise or a production experience. These figures, together with production figures are used in the analysis of the enterprise.



The Employment Achievement form is used in place of the Cost Accounting form when the experiences involve employment in a service occupation rather than production occupations.

The Analysis form should be marked at the beginning of the experience program with a "G" to indicate the goal that a student has set for himself. The same scales are marked with an "A" to indicate actual achievement at the end of the experience program. The analysis sheet provides for an evaluation of the approved practices used and their relationship to production or service and income.

Example of the Use of Efficiency Factors and Production Goals

The Pennsylvania Agricultural Production Program Record Book provides space for the student to list appropriate efficiency factors for each productive enterprise. In the example below, the figures in the column "Local Efficiency Standards" will have been obtained through group study by the students with the help of the teacher. An analysis of records of similar enterprises completed in previous years by students in the same school will also serve as a guide.

PRODUCTION GOALS:	Potted (	Chrysanthemum,_	EN	TERPRISE
Efficiency Factor	Local Efficie Average	ncy Standards Superior	Student Goal	Student Achieve- ment
Percent marketed	95 <b>%</b>	100%	100%	97%
Number of 6" pots per 100 sq. ft. of bench space	75	100*	100	98
Number of blooms/ 6" pot	18	24	24	22
Percent of pots in 16" to 18" height range including pot marketed	90%	95% .	95%	92%

<sup>\*(</sup>Optimum number)

# Approved Practices - Potted Chrysanthemum

PRA	<u>CTICE</u>	REFERENCE
١.	Crop Planning, Selection, Rotation Schedule	P. 72-75
2.	Soil Mixing and Steaming	P. 42, 56
3.	Potting	P. 75
4.	Photoperiod Control	P. 74
5.	Watering	P. 77
6.	Temperature Control	P. 76
7.	Fertilizing	P. 43-51, 77-78
8.	Pest Control	P. 52-65
9.	Growth Regulator Application	P. 79-80
10.	Pinching and Disbudding	P. 78-79
11.	Marketing Preparation	P. 80

Reference: GREENHOUSE CROP PRODUCTION - A STUDENT HANDBOOK, PSU 1969

## Goals Stated in Relation to Efficiency

#### Potted Chrysanthemums

Eff	iciency Factor	Efficienc Average	y Standard Superior
	Percent Marketed	95%	100%
1.	refeelt Markered	JJμ	100%
2.	Number of 6" pots per 100 sq. ft. of bench space	75	100
3.	Number of blooms per pot	18	24
4.	Height at Market including Pot .		95% 8 <sup>fi</sup> height ge)
5.	Marketed at Predetermined week	80%	95%
6.	Intense foliage and flower color	Good	Excellent
7.	Unblemished	90%	100%



Contest	E	fficiency Level	n. Efficiency for Determining ore (average)	Max. Efficiency Level for Determining Score (superior)	D
Pot Mums	а.	% Marketed	95%	100%	.2 points f
	b.	No. of.blooms per pot	18	24	.l point fo 18 (average
	c.	No. of 6" pots per 100 sq. ft. of bench space	75	100	.05 point f 75 up to 10
	d.	% of pots in 16" to 18" height range a market including pot		95%	.2 points f
	e.,	% Marketed at pre- determined week	95 <b>%</b>	100%	.2 points f over 95%



Efficiency Factor	Min. Effic Level for Det Score (ave	ermining Level	Efficiency for Determining e (superior)	Method for Determing Score
% Marketed	95%		100%	.2 points for each 1% marketed over 95%
No. of blooms per pot	18		24	.l point for each bloom over 18 (average)
No. of 6" pot 100 sq. ft. o bench space	•		100	.05 point for each pot over 75 up to 100
% of pots in 18" height ra market includ pot	inge at		95%	.2 points for each 1% over 90%
% Marketed a determined we			100%	.2 points for each 1% marketed over 95%



#### Cost Accounting - Potted Chrysanthemums

- 1. Cost of rooted cuttings varies from 9¢ to 18¢ each, depending upon variety. Use the actual price paid.
- 2. Container 6" clay or plastic pots cost about 8¢ each: when actual price is not known, use this figure. Plastic drain pieces cost about 1¢ each.
- 3. Scil mix a cubic yard of mixed, steamed soil to which fertilizer has been added costs about \$15.00. One cubic yard (27 cubic feet) will fill 504,3/4 size 6-inch pots.
- 4. Overhead costs (depreciation, fuel, supplies, etc.) are about \$1.40 per square foot of actual growing space per year.
- 5. Labor costs are about \$1.60 per square foot of actual growing space per year.
- 6. The average marketing cost is 20% of the total of all other costs.

# \*Aralysis of Potted Chrysanthemum Enterprise

Name_		Date started	
Schoo	ol	Variety	
Count	-у	Total receipts	×
Sq. F	t. of bench space a	Total expenses	У.
Tota	Production	Labor and management $(x - y)$	t income z
Produ (b ÷	uction/100 sq. ft. pots a) $\times$ 100	Income/IOO sq. ft. (z ÷ a) × IOO	bench space
	Poor	Average	Superior
١.	90%	95% % Marketed	100%
		% Marketed	
2.	50 75 6" p	100 . ots/100 sq. ft.	200
3.	12 No.	of Blooms/pot	24
1.	90% % Marketed	95% at Predetermined Wee	100%k
5.	80% % of pots in	90% 16" to 18" height ra	100% ange
	Place a red "G" on each I on each line scale at eff	ine scale at goal set	
Pra lim	ctices and conditions which ited the production and in	n Practices ar come contributed	nd conditions which to superior efficiency



<sup>\*</sup>Analysis based on 6" pots with 5 cutting/pot, pinched, disbudded.

#### Approved Practices - Poinsettias

		RE	FERENCE
١.	Crop Planning, Selection, Rotation	Ρ.	84-91
2.	Soil Mixing and Steaming	Ρ.	42-51
3.	Potting	Ρ.	92-93
4.	Photoperiod Control	Ρ.	91-92
5.	Watering	Ρ.	93-94
6.	Temperature Control	Ρ.	94-95
7.	Fertilizer	Р.	94
8.	Pest Control	Р.	52-65
9.	Pinching	Ρ.	95-96
10.	Growth Regulator Application	Ρ.	96-98
11.	Marketing Preparation	Ρ.	98-99

Reference: GREENHOUSE CROP PRODUCTION - STUDENT HANDBOOK, PSU 1969 POINSETTIA MANUAL - PAUL ECKE



# Goals Stated in Relation to Efficiency

#### Poinsettia

Efficiency Factors	Efficienc Average	sy Standard Superior
I. % Marketed	95%	100%
<ol> <li>Number of 6" pots per 100 sq. ft. of bench space</li> </ol>	75	100
3.* a. Number of blooms per pot (3 cutting/pot)	3 .	·
b. Number of blooms per pot (pinched-3 cutting,	/pot) 6	7
<ul> <li>Number of blooms per pot (self branching cultivar)</li> </ul>	6	8
4. % Marketed at predetermined week	85%	95%
5. Height of marketed plant including pot	85 <b>%</b> in 16"-18"	95% height range)
6. Intense foliage and flower color	Good	Excellent
7. Unblemished	90%	100%
8. Uniform growth	Good	Excellent

<sup>\*</sup>Select 3a, or 3b, or 3c.



Contest		ciency actor	Min Level	. Efficiency for Determining Score	Max. Efficiency Level for Determining Score	Det
Poinsettias	а.	% of crop marketed		95%	100%	.2 ove
	b.	No. of 6" pots per 100 sq. ft. of bench space		75	100	.05 ove
	c.*	No. of blooms per (3 cutting/pot)	pot	3		.l flo eff
		No. of blooms per (pinched-3 cutting		6	7	.l flo eff
		No. of blooms per (self branching cu 3 cuttings/pot)	po† . †ivar-	6	8	.l flo eft
	d.	% of pots in 16"-2 height range at ma including pot	20" arketing	90%	95%	.   %
	٥.	% marketed at pred mined week	deter-	95%	100%	.2 1%

<sup>\*</sup>Select one.



iciency actor	Min. Effici Level for Dete Score	ency Max. Efficiency rmining Level for Determining Score	Method for Determining Score
% of crop marketed	95%	100%	.2 points for every 1% over 95%
No. of 6" pots per 100 sq. ft. of bench space	75	100	.05 point for each pot over 75 up to 100
No. of blooms per p (3 cutting/pot)	ot 3		.! point for each flower over minimum e.fficiency factor
No. of blooms per p (pinched-3 cuttings		7	.! point for each flower over minimum efficiency factor
No. of blooms per p (self branching cul 3 cuttings/pot)		8	.l point for each flower over minimum efficiency factor
% of pots in 16"-20 height range at mar including pot		95%	.l point for every 1% over 90%
% marketed at predemined week	eter- 95% .	100%	.2 points for each 1% marketed over 95%

#### Cost Accounting - Poinsettia

- Cost of rooted cuttings or plants 25¢ each, depending upon variety.
   Use the actual price paid.
- 2. Container 6" clay or plastic pots cost about 8¢ each: when actual price is not known, use this figure. Plastic drain pieces cost about 1¢ each.
- 3. Soil mix A cubic yard of mixed steamed soil to which fertilizer has been added costs about \$14.00. One cubic yard (27 cubic feet) will fill 504, 3/4 size 6-inch pots.
- 4. Overhead costs (depreciation, fuel, supplies, etc.) are about \$1.40/sq. ft. of actual growing space per year.
- 5. Labor costs are about \$1.60/sq. ft. of actual growing space/yr.
- 6. The wholesale marketing cost is close to 20% of total of all other costs.



# Analysis of Potted Poinsettia

Variety	Name_		Date Started	_Ended		
Sq. Ft. of Bench Space         a         Total expenses         y           TOTAL Production         pots b         Labor & Management income         z           (x - y)         Income/100 sq. ft. bench space         z           (b ÷ a)         100 sq. ft. bench space         superior           1. 90%         95%         100%           6" pots/100 sq. ft.         150           3. 2         3         4           blooms/pot (three cutting/pot)         4           4. 6         7         8           blooms/pot (pinched-3 cuttings/pot)         5           6. 85%         95%         100%           % marketed in predetermined week         7         8           7. 80%         90%         100%           % of crop in the 16"-20" height range         Place a red "G" on each line scale at goal set. Place a red "A" on each line scale at efficiency achieved.           Practices & conditions which limited         Practices & conditions which conditions which conditions which limited	Schoo	ol	Variety			
TOTAL Production	Coun-	ty	_ Total receipts			
Production/100 sq. ft. pots   Income/100 sq. ft. bench space	Sq. I	Ft. of Bench Space <u>a</u>	Total expenses	У.		
Production/100 sq. ft. pots Income/100 sq. ft. bench space (b ÷ a) (z ÷ a) x !00  Poor Average Superior  1. 90% 95% 100% 100% 6 Marketed  2. 75 100 150 6" pots/100 sq. ft.  3. 2 3 4 blooms/pot (three cutting/pot)  4. 6 7 8 blooms/pot (pinched-3 cuttings/pot)  5. 6 7 8 blooms/pot (self branching cv3 cuttings/pot)  6. 85% 95% 100% 6 Marketed in predetermined week  7. 80% 90% 100% 7 of crop in the 16"-20" height range  Place a red "G" on each line scale at goal set. Place a red "A" on each line scale at efficiency achieved.  Practices & conditions which limited Practices & conditions which co	TOTA	L Production pots b		income z		
Poor  Average Superior  1. 90% 95% 100%  Marketed  2. 75 100 6" pots/100 sq. ft.  3. 2 3 4 blooms/pot (three cutting/pot)  4. 6 7 8 blooms/pot (pinched-3 cuttings/pot)  5. 6 7 8 blooms/pot (self branching cv3 cuttings/pot)  6. 85% 95% 100%  marketed in predetermined week  7. 80% 90% 100%  for crop in the 16"-20" height range  Place a red "G" on each line scale at goal set. Place a red "A" on each line scale at efficiency achieved.  Practices & conditions which limited Practices & conditions which co	(b ÷	a)	Income/100 sq. ft. (z ÷ a) x 100			
2. 75 100 sq. ft.  3. 2 3 4  blooms/pot (three cutting/pot)  4. 6 7 8  blooms/pot (pinched-3 cuttings/pot)  5. 6 7 8  blooms/pot (self branching cv3 cuttings/pot)  6. 85% 95% 100%  # markeled in predetermined week  7. 80% 90% 100%  # of crop in the 16"-20" height range  Place a red "G" on each line scale at goal set. Place a red "A" on each line scale at efficiency achieved.  Practices & conditions which limited Practices & conditions which co						
3. 2 3 4  blooms/pot (three cutting/pot)  4. 6 7 8  blooms/pot (pinched-3 cuttings/pot)  5. 6 7 8  blooms/pot (self branching cv3 cuttings/pot)  6. 85% 95% 100%  # markeled in predetermined week  7. 80% 90% 100%  # of crop in the 16"-20" height range  Place a red "G" on each line scale at goal set. Place a red "A" on each line scale at efficiency achieved.  Practices & conditions which limited Practices & conditions which co	1.	90% % Ma	95% rketed	100%		
4. 6 7 8  blooms/pot (pinched-3 cuttings/pot)  5. 6 7 8  blooms/pot (self branching cv3 cuttings/pot)  6. 85% 95% 100%  markeled in predetermined week  7. 80% 90% 100%  sof crop in the 16"-20" height range  Place a red "G" on each line scale at goal set. Place a red "A" on each line scale at efficiency achieved.  Practices & conditions which limited Practices & conditions which co	2.	756" pots/	100 100 sq. ft.	150		
5. 6  blooms/pot (self branching cv3 cuttings/pot)  6. 85%  95%    100%						
6. 85% 95% 100%  # markeied in predetermined week  7. 80% 90% 100%  # of crop in the 16"-20" height range  Place a red "G" on each line scale at goal set. Place a red "A" on each line scale at efficiency achieved.  Practices & conditions which limited Practices & conditions which co	4.	6 blooms/pot (pinc	7 ched-3 cuttings/pot)	8		
6. 85% 95% 100%  # markeied in predetermined week  7. 80% 90% 100%  # of crop in the 16"-20" height range  Place a red "G" on each line scale at goal set. Place a red "A" on each line scale at efficiency achieved.  Practices & conditions which limited Practices & conditions which co	5.	6 blooms/pot (self brän	7 aching cv3 cuttings/	8 pot)		
<ul> <li>Place a red "G" on each line scale at goal set. Place a red "A" on each line scale at efficiency achieved.</li> <li>Practices &amp; conditions which limited Practices &amp; conditions which co</li> </ul>	6.	85%	95 <b>%</b>			
<ul> <li>Place a red "G" on each line scale at goal set. Place a red "A" on each line scale at efficiency achieved.</li> <li>Practices &amp; conditions which limited Practices &amp; conditions which co</li> </ul>	7.	80% % of crop in the	90% 16"-20" height range	100%		
	•	Place a red "G" on each line on each line scale at efficie	scale at goal set. Pency achieved.	lace a red "A"		



# Approved Practices - Easter Lily

		<u> </u>	<u> </u>	<u>ERENCE</u>
1.	Crop Planning, Selection-Rotation Sche	edule F	٥.	101-104
2.	Soil Mixing and Steaming	F	٥.	42-51, 104
3.	Potting	F	∍.	104
4.	Timing and Temperature Control	F	Р.	106-108
5.	Photoperiod Control	F	Ρ.	106-108, 110
6.	Waiering	į	Р.	105-106
7.	Fertilizing	ī	Ρ.	105
.8.	Pest Control	1	Ρ.	52-65,   0-
9.	Market Preparatiòn		Р.	111

Reference: GREENHOUSE CROP PRODUCTION - A STUDENT HANDBOOK, PSU 1969

## Goals Stated in Terms of Efficiency

#### Easter Lily

		Efficiency	Standards
Fff	iciency Factors	Average	Superior
	, , , , , , , , , , , , , , , , , , , ,		
١.	Percent Marketed	95%	100%
2.	Number of 6" pot/100 sq. ft. of bench space	100	110
3.	Number of blocms per pot (from 8-9 size bulbs)	4	5
4.	Height (pot included)	16"	24"
5.	Marketed at predetermined week, I bloom open	95%	100%
6.	intense foliage, color, and large bloom	Good	Excellent
7.	Unblemished	90%	100%

Contest	Eff	iciency Factor	Min. Efficiency Level for Determining Score (average)	Max. Efficiency g Level for Determining Score (superior)	De
Easter Lily	a.	% of crop markete	ed 95%	100%	.2 1%
	ь.	No. of blooms per	- po† 4	6	.3 b1
	C.	No. of 6" pots pe 100 sq. ft. of be space		110	.0 po
	d.	% of pots in 16 t inch height range market including	e at	95%	. I ov
	е.	Percent marketed predetermined wee		100%	.2 1%



Eff	iciency Factor	Min. Efficiency Level for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)	Method for Determining Score
а.	% of crop marketed	95%	I 00%	.2 points for each 1% marketed over 95%
ь.	No. of blooms per	pot 4	. 6	.3 points for each bloom over 4
с.	No. of 6" pots per 100 sq. ft. of ben space		110	.05 point for each pot over 100
d.	% of pots in 16 to inch height range market including p	a†	95%	.l point for each 1% over 90%
е.	Percent marketed a predetermined week	· - •	100%	.2 points for each 1% marketed over 95%



#### Cost Accounting - Easter Lily

- 1. Cost of bulbs 35 ¢ to 45 ¢ each, depending upon variety. Use the actual price paid.
- 2. Container 6" clay or plastic pots cost about 8¢ each: when actual price is not known use this figure. Plastic drain pieces cost about 1¢ each.
- 3. Soil mix a cubic yard of mixed steamed soil to which fertilizer has been added costs about \$14.00. One cubic yard (27 cubic feet) will fill 504, 3/4 size 6-inch pots.
- 4. Overhead costs (depreciation, fuel, supplies, etc.) are about \$1.40 sq. ft. of actual growing space/year.
- 5. Labor costs are about \$1.60 per sq. ft. of actual growing space/year.
- 6. The wholesale marketing cost is close to 20% of the total of all other costs.



## Analysis of Easter Lily Enterprise

Name			Date started	Ended
School			Variety	
County			Total receipts	×
Sq.	ft. of Bench Space	a	Total expenses	у
Total Production b		b	Labor and management income $z$ $(x - y) \times 100$ Income/100 sq. ft. of Bench Space $(z \div a)$	
Production/IOO sq. ft(b ÷ a) x IOO				
	Poor	Aver	age	Superior
1.	90%	95% % Marketed		100%
2.	90 P	100 Pots/100 sq. ft.		110
3.	2 Number	3 blooms/p	ot (7-8" bulb)	5
4.	12" Hei	16" Height at market time		24"
5.		95% at predetermined week, one		100% bloom
	Place a red "G" on each on each line scale at ef			Place a red "A"
Practices & conditions which limited Production & income			Practices & conditions which con- tributed to superior efficiency	
				<del></del>

#### Approved Practices - Geranium, 4"

PRA	CTICE	REFERENCE
١.	Crop Planning, Selection, Rotation Schedule	P. 331-335
2.	Soil Mixing and Steaming	P. 93-119, 332
3.	Potting	P. 331-335
4.	Pinching	P. 331-335
5.	Watering	P. 331-335
6.	Temperature Control	P. 331-335
7.	Fertilizing	P. 331-335
8.	Pest Control	P. 335-336, 120-128
9.	Marketing Preparation	

References: BALL RED BOOK - 12th EDITION, PRODUCED BY GEORGE J. BALL,

INC.

GERANIUMS - PSU

#### Goals Stated in Terms of Efficiency

Geraniums, 4"

		Efficiency	Standards	
Eff	iciency Factors	Average	Superior	
١.	Percent Marketed	95%	100%	
2.	Number of pots per 100 sq. ft.	300	330	
3.	Number of flowers per pot	1	3	
4.	Height, including pot	8"	10"	
5.	Marketed at a predetermined week	85%	95%	
6.	Intense foliage color and flower color	Good	Excellent	
7.	Unblemished	90%	95%	

6-e--



Contest	Eff	iciency Factor	Min. Efficiency Level for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)	De <b>1</b>
Geraniums		% marketed	95%	100%	.1
	b.	No. of 4" pots per 100 sq. ft. of bendspace	300	330	.0: pod
	c.	No. of blooms per at market stage	pot 2	4	.0! blo
	d.	Height - including	pot 8"	10"	.2 ove 10
	е.	% marketed at pred mined week	eter- 85%	95%	.2
	f.	Foliage & flower cunblemished	olor 90 <b>%</b>	95%	. I

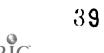








l	Min. Efficiency evel for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)	Method for Determining Score
a. % marketed	95%	100%	.l point for each
No. of 4" pots per 100 sq. ft. of bend space	300 ch	330	.05 point for each pot over 300
:. No. of blooms per p at market stage	2	4	.05 points for each bloom over 2
d. Height – including	po† 8"	l 0"	.2 point for each $\frac{1}{2}$ " over 8" average to 10"
e. % marketed at pred mined week	eter- 85%	95%	.2 points for each 1% marketed over 85%
f. Foliage & flower countries	olor 90%	95%	.l point for each 1% over 90%



#### Cost Accounting - Geranium, 4"

- 1. Cost of rooted cuttings varies from .10 to .20 each, depending upon variety. Use the actual price paid.
- 2. Container 4" clay or plastic pots cost about 4¢ each: when actual price is not known, use this figure. Plastic drain pieces cost about 1¢ each.
- 3. Soil mix a cubic yard of mixed, steamed soil to which fertilizer has been added. Cost about \$14.00 one cubic yard (27 cubic feet) will fill 3916, 3/4 size 4-inch pots.
- 4. Overhead costs (depreciation, fuel, supplies, etc.) are about \$1.40/ sq. ft. of actual growing space/year.
- 5. Labor costs are about \$1.60/sq. ft. of actual growing space/year.
- 6. The wholesale marketing cost is close to 20% of the total of all other costs.

# Analysis of Geranium Enterprise

Name	e	· · · · · · · · · · · · · · · · · · ·	Date started	Ended
Scho	001		Variety	·
Cour	nty		Total receipts	x
Sq.	ft. Bench	<u>_</u> a "	Total expenses	у
Tota	al Production_	Pots b	Labor management	income z
Prod (b :	duction/100 sq. : a) × 100	. ft	Income/100 sq. ft (z ÷ a) × 100	. of bench space
	Poor	Avera	ge	Superior
١.	90%	95%		100% -
		% of plants	markered	
2.	270	300 Pots/100 sq. ft.	bench space	<b>3</b> 30
3.		Blooms/		3
4.	6	8 Height of plant a		10
5.	80	85	; ;	95
		Marketed at prede	termined week	
6.	Pòor	Goo Intensity of foliag		Superior
7.	Poor	Goo Unblemi	od shed	Excellent
		'G" on each line scal scale at efficiency		ace a red "A"
	ctices & condit production & i	tions which limited income	Practices & condi tributed to super	
				<del></del>



# Approved Practices - Bedding Plants.

PRA	CTICE	REF	<u>ERENCE</u>
1.	Crop Planning, Selection, Rotation Schedule	Ρ.	115-121
2.	Soil Mixing and Steaming		42-57 <b>,</b> 118
3.	Seed Sowing	Ρ.	120-121
4.	Planting, Transplanting or Direct Seeding	Ρ.	122-128
5.	Watering	Ρ.	121, 128- 130
6.	Temperature Control	Ρ.	122, 128- 130
7.	Fertilizing	Ρ.	125, 128- 130
8.	Pest Control	Ρ.	58-61, 130
9.	Growth Regulator Application	Ρ.	128-129
10.	Market Preparation .	Р.	130-131

References: GREENHOUSE CROP PRODUCTION - A STUDENT HANDBOOK, PSU 1969
BEDDING PLANTS - PSU



#### Goals Stated in Relation to Efficiency

# Bedding Plants .

		Efficiency	Standards
Eff	iciency Factors .	Average	Superior
١.	Percent Marketed	95%	100%
2.	No. of packs/100 sq. ft.	300	320
3.	Percent of plants that survive transplant	90%	95%
4.	Percent Marketed at predetermined week	75%	95%
5.	Percent within 6-7 inch range	80%	90%
6.	Intense foliage color	Good	Excellent
7.	Unblemished	90%	95%



Contest	Efficiency Factor	Min. Efficiency Level for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)	De
Bedding Plants	a. % marketed	95%	100%	·2
	b. No. of packs/100	) sq. ft. 300	320	.0 pa
	c. % of plants that survived transp		95%	.2 1%
	d. % marketed at a predetermined wa	75% eek	95%	.0
	e. % of plants with 6-7 inch range	hin 80%	90%	. I 2%



fficiency Factor	Min. Efficiency Level for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)	Method for Determining Score
÷.			
. % marketed	95%	100%	.2 points for every 1% above 95%
No. of packs/100	sq. ft. 300	320	.05 point for every pack above 300
. % of plants that survived transpla	nting 90%	95%	.2 points for every 1% over 90%
. % marketed at a predetermined wee	75% k	95%	.05 point for every 1% above 75%
. % of plants withi 6-7 inch range	n 80%	90%	.1 point for every 2% point above 80%



#### Cost Accounting - Bedding Plants

- 1. Cost of seeds varies with plant material and variety, use actual cost.
- 2. Containers "market paks" costs about 6 cents; when actual cost is not known, use this figure.
- 5. Soil mix a cubic yard of mixed, steamed soil to which fertilizer has been added costs about \$14.00. One cubic yard (27 cubic feet) will fill 462 "market paks" (#42 market paks) (5 1/2 x 7 3/4 x 2 3/8).
- 4. Overhead costs (depreciation, fuel, supplies, etc.) are about \$1.40/sq. ft. of actual growing space/year.
- 5. Labor costs are about \$1.60/sq. ft. of actual growing space/year.
- 6. The wholesale marketing cost is close to 20% of the total of all other costs.

# Analysis of Bedding Plant Enterprise

Name	· ·	Date Started	Ended
School	<u> </u>	Variety	
County		Total Receipts	X
Square Fee	† Bench	a_Total Expenses	у
Total Prod	uction <u>mktg.packs</u>	<u>b</u> Labor Management (x - y)	Income
(D + a) x	Sq. Ft	(z ÷ a) × 100	
	Poor	Average .	Superior
1,	90 Perce	95 ent Marketed	100
2.	230 Packs/I	300 00 Square Feet	320
3.	5 (II)	6 (12) Plants/Pack	7 (13)
4.		75 1 at Pre-determined W	
5.	70 Percent Plants in	80 6-7" Range at Market	90
6.	Poor		excellent
7.	85 Percer	90 nt Unblemished	95
	ed "G" on each line sca a at efficiency achieve		ace a red "A" on each
	and conditions which e production and incor	Practices and come: contributed to su	



Prepared by The Department of Agricultural Education, The Pennsylvania State University, in cooperation with the Pennsylvania Department of Education and Pennsylvania Vocational Agriculture Teachers. 1974

# Supervised Occupational Experience Record Forms for Ornamental Horticulture (Revised) 1974

GREENHOUSE CROPS - CUT FLOWERS B 35-54

Chrysanthemum B 38-42 Carnation B 43-47 Snapdragon B 48-52

To be used with any production, occupational, or work experience record book.

Department of Agricultural Education
The Pennsylvania State University
in cooperation with
Bureau of Vocational Education
Pennsylvania Department of Education



#### Using The Forms

The five record sheets included in this unit are intended to be used with any production, occupational or work experience record book for high school vocational agriculture programs.

Approved Practices gives specific references to production or service practices that are generally accepted in industry as giving superior results if appropriately applied. A particular business firm might use variations of some of these practices because of unusual local conditions. Students carrying out production projects should find these references especially helpful. Students in agricultural production or services work experience will find them useful guides to what will be expected to them on the job.

Goals are stated in relation to efficiency. They are drawn up on the basis of comparisons of superior achievement with average achievement. The goals given are considered realistic in terms of production enterprises or work experience in production or services occupations. Successful businesses rank somewhere between "average" and "superior" in their goals.

The Efficiency Factor form provides a means for giving a numerical score on goal achievement. It is equally applicable to production enterprises, production occupations or service occupations. The scores are used as one base for comparisons in the judging of record books in regional and state record book contests.

Cost Accounting record forms serve as a guide for calculating the costs and profit in a production enterprise or a production experience. These figures, together with production figures are used in the analysis of the enterprise.

The <u>Employment Achievement</u> form is used in place of the <u>Cost Accounting</u> form when the experiences involve employment in a service occupation rather than production occupation.



The Analysis form should be marked at the beginning of the experience program with a "G" to indicate the goal that a student has set for himself. The same scales are marked with an "A" to indicate actual achievement at the end of the experience program. The analysis sheet provides for an evaluation of the approved practices used and their relationship to production or service and income.

Example of the Use of Efficiency Factors and Production Goals

The Pennsylvania Agricultural Production Program Record Book provides

space for the student to list appropriate efficiency factors for each productive enterprise. In the example below, the figures in the column "Local Efficiency Standards" will have been obtained through group study by the students with the help of the teacher. An analysis of records of similar enterprises completed in previous years by students in the same school will also serve as a guide.

PRODUCTION GOALS:	Potted Chrysant	hemum	ENTER	PRISE
Efficiency Factor	Local Efficie Average	ency Standards Superior	Student Goal	Student Achievement
Percent marketed	95%	100%	100%	97%
Number of 6" pots per 100 sq. ft. of bench space	75	I 00 <b>*</b>	100	98
Number of blooms/6" pot	18	24	24	22
Percent of pots in 16" to 18" height range in- cluding pot marketed	90 <b>%</b>	95%	95%	92%

<sup>\* (</sup>Optimum number)

#### Approved Practices - Cut Chrysanthemums

	PRACTICES	REFERENCE
١.	Crop Planning, Selection, Rotation Schedule	p. 152-154
2.	Soil Bench Preparation	p. 33, 34, 153, 154
3.	Planting	p. 155-156
4.	Pinching and Disbudding and Thinning	p. 158
5.	Supporting	p. 166
6.	Photoperiod Control	p. 153-154
7.	Carbon Dioxide	p. 158
8.	Watering	p. 156
9.	Temperature Control	p. 157
10.	Pest Control .	p. 52-65
11,	Fertilizing	p. 157
12.	Harvesting and Market Preparation	p. 158-159

Reference: GREENHOUSE CROP PRODUCTION - A STUDENT HANDBOOK, PSU, 1969

#### Goals Stated in Relation to Efficiency

Cut Chrysanthemums Efficiency Standards Average **Lfficiency Factors** Superior 95% 1.00% % Marketed Single Stem 475 550 Stems per 100 sq. ft. ot bench space Pinched 800 900 Single - 36" 38" Stem Length Pinched - 30" 32" 4. Marketed at predetermined 95% 100% date Excellent Intense foliage color Good 90% 100% Unblemished Meeting Society of 20% purple 25% purple 50% blue 45% blue American Florists 25% red 25% red Standards

10% green

Contest	Efficiency Factor	Min. efficiency level for determining Score (average)	Max. efficiency level for determining Score (superior)
Cu†	a. % Marketed	95%	100%
Chrysanthe- mum	b.(1). Stems per 100 sq. ft. of bench	Single - 475	550
	space (2). Stems per 100 sq. ft. of bench	Pinched - 800	900
	space c. Stem length	Single - 36"	38"
1		Finched - 30"	. 32" •
	d. Marketed at pre- determined week	75%	95% .
	e. % of crop meeting 40% blue grade of the Society of American Florists Standards	45%	50%



6

ncy Factor	Min. efficiency level for determining Score (average)	Max. efficiency level for determining Score (superior)	Method for determining score
arketed	95%	100%	.2 points for each 1% over
Stems per 100 q. ft. of bench	Single - 475	550	.026 point for each stem over 475 up to 550
pace Stems per 100 q. ft. of bench	Pinched - 800	900	.02 point for each stem over 800 up to 900.
pace m leng†h	Single - 36"	38"	.5 point for each I" over 36
	Finched - 30"	32"	.5 point for each I" over 30
keted at pre- ermined week	75%	95%	.05 for each 1% over 75% market at predetermined date max.
f crop meeting blue grade of Society of rican Florists ndards	45%	• 50%	.l point for each 5% points over 45%



5

6

#### Cost Accounting - Cut Chrysanthemums

- Cost of Rocted Cuttings Varies from 8¢ to 15¢ depending upon variety. Use the actual price paid.
- Soil Mix A cubic yard of steamed soil to which fertilizer has been added costs about \$14.00.
- Overhead Costs (Depreciation, Fuel, Supplies, Etc.) Are about \$1.40/sq. ft. of actual growing space/year.
- 4. Labor Costs are about \$1.60/sq. ft. of actual growing space/year.
- 5. Wholesale marketing cost is close to 20% of the total of all other costs.



#### Analysis of Cut Chrysanthemum Crop

Name		Date Started _	Ended
School		Variety	
r Total n Blooms/	of sq. ft. Benc umber blooms umber of stems	Total Receipts (including end th a Total Expenses (including beg b Labor Manageme (x - y = z;) Income/100 sq. (z ÷ ) x 100	ing inventory  yinning inventory) ent Incomez  ft. of bench space
	Poor	Average	Superior
Ι.	90	95 % of Crop Marketed	100
2.	475 Single S	512 Stem Crops, Stems/100 sq.	550 , ft.
3.	700 Spray Pi	800 nched Crops, Stems/100 s	900 q. ft.
4.	34" Singl	36" e Stem Crops, Stem Lengt	38" th
5.	28" Pi	:30" nched Crop, Stem Length	32"
6.	75 % of crop me	95 eeting "Blue Grade" stand	loo dard of S. A. F.
		ch line scale at goal set ncy achieved.	t. Place a red "A" on each
	the production	ons which Practices and n and contributed to	conditions which superior efficiency:



# Approved Practices - Carnations

PRA	CTICES	REFERENCES
1.	Crop Planting, Selection, Rotation Schedule	P. 162-163, 165
2.	Soil Mixing and Steaming	P. 42-51, 153, 163
3.	Light and Photoperiod Control	P. 167-169
4.	Carbon Dioxide Control	P. 169
5.	Watering	P. 156
6.	Temperature Control	P. 167
7.	Fertilizing	P. 16 <b>3-</b> 166
8.	Pest Control	P. 52-65, 171-172
9.	Supporting	P. 166
10.	Pinching - Disbudding	P. 169-171
11.	Banding of Splits	<b>*-</b>
12.	Market Preparation	P. 172-174

Reference: GREENHOUSE CROP PRODUCTION - STUDENT HANDBOOK, PSU 1969

# Goals Stated in

#### Relation to Efficiency

Carnations •		<u>Ef</u>	ficiency	Standards
Efficiency Factor	rs		lverage	Superior
∣. % Marketed			95%	100%
2. No. of plants	s/100 sq. ft.		280	300
3. No. of stems,	/sq. ft./year		25	27
4. Quality dist	ribution	Blue Red Green	25% 50% 25%	30% 55% 15%
5. Intense flow	er color		Good	Excellent



Contest	Efficiency Factors	Min. efficiency level for determining Score (average)	Max. efficiency level for determi Score (superior
Carnations	a. % Marketed	95%	100%
	<ul><li>b. No. of plants/100 sq. ft. bench space</li></ul>	280	300
	c. No. of stems/sq. ft./year	. 25	27
	d. Quality distribution	25% Blue 50% Red 25% Green	30% Blue 55% Red 15% Green



Min. efficiency level for determining Score (average)	Max. efficiency level for determining Score (superior)	Method for determining score
95%	100%	.2 points for each 1% over 95% marketed
280	300	.05 point for each stem over 300 max.
25	27	.l point for each stem over 16
25% Blue 50% Red 25% Green	30% Blue 55% Red 15% Green	.2 point for each 1% over 50% in Red
	level for determining Score (average)  95%  280  25%  Blue 50% Red	level for determining Score (average)  95%  100%  280  300  25  27  25% Blue 50% Red  30% Blue 55% Red

#### Cost Accounting - Carnations

- 1. Cost of Rooted Cuttings varies from 8¢ to 15¢ each depending on variety. Use the actual price paid.
- 2. Soil mix a cubic yard of mixed, steamed soil to which fertilizer has been added costs about \$14.00.
- 3. Overhead costs (depreciation, fuel, supplies, etc.) are about \$1.40/sq. ft. of actual growing space/year.
- 4. Labor costs are about \$1.60/sq. ft. of actual growing space/year.
- 5. The wholesale marketing cost is close to 20% of the total of all other costs.



# Analysis for Carnations

Name	Date Started	Ended
School	Variety	
County  Sq. ft. of bench space Number of stems	Total Receipts (including endi ea Total Expenses (including begi b Labor Managemer	ng inventory)
Stems/sq. ft. (b ÷ a) × 100	(x - y) c Income/100 sq. (z ÷ a) x 100	ft. of bench space
Poor	Average	Superior
90	95 % Marketed	100
2. <u>260</u>	280 Plants/100 sq. ft.	300
3. 22	25 Stems/sq. ft.	27
4. <u>45</u> % Qual	50 ity distribution by color	Red 55
5. <u>Poor</u>	Good Intensity of flower co	Excellent
Place a red "G" on ea line scale at efficie	ach line scale at goal set	. Place a red "A" on each
Practices and condit limited the production	ions which Practices and on and contributed to	conditions which superior efficiency:



# Approved Practices - Snapdragons, Single Stem

PRA	CTICE	REF	ERENCE
١.	Crop Planning, Selection, Rotation Schedule	Р.	175-178
2.	Soil Mixing and Steaming	Ρ.	42-51, 178-179
3.	Watering	Ρ.	179
4.	Temperature Control	Ρ.	179
5.	Fertilization	Ρ.	179
6.	Pest Control	Р.	42-65, 180
7.	Carbon Dioxide	Ρ.	180
8.	Response to light intensity and Duration	Ρ.	176-177
9.	Marketing Preparation	Ρ.	175-176, 180-182

Reference: GREENHOUSE CROP PRODUCTION - A STUDENT HANDBOOK, PSU 1969 SNAPDRAGONS - CORNELL UNIV.

#### Goals Stated in Relation to Efficiency

Snapdragons, single stem

Shapar agons, strigte stom		y Standards
Efficiency Factors	Average	Superior
I. Percent Marketed	95 <b>%</b>	100%
2. No. of plants per 100 sq. ft. of bench	550	600
3. No. of flowers per 100 sq. ft.	550	600
4. Quality distribution Blue Red Green	20% 50% 1 20%	25% 55% 10%
5. Percent marketed at a predetermined week	75%	95%
6. Intense foliage and flower color	Good	Excellent
7. Unblemished	90%	100%



Efficiency Factor	Min. efficiency level for determining Score (average)	Max. efficiency level for determinin Score (superior)
a. % Marketed	95%	100%
b. No. of plants per 100 sq. ft. of bench space	550	600
c. No. of flowers per 100 sq. ft.	550	600
d. % Marketed at predet- ermined week	75%	95%
e. Quality distrib <b>u</b> tion	20% Blue 50% Red 20% Green	25% 55% 10%
	<ul> <li>a. % Marketed</li> <li>b. No. of plants per 100 sq. ft. of bench space</li> <li>c. No. of flowers per 100 sq. ft.</li> <li>d. % Marketed at predetermined week</li> </ul>	Efficiency Factor  a. % Marketed  b. No. of plants per 100 sq. ft. of bench space  c. No. of flowers per 100 sq. ft.  d. % Marketed at predetermined week  e. Quality distribution  level for determining Score (average)  95%  550  550  75%  20% Blue 50% Red



iciency Factor	Min. efficiency level for determining Score (average)	Max. efficiency level for determining Score (superior)	Method of determining score
% Marketed	95%	100%	.2 points for each 1% marketed over 95%
No. of plants per 100 sq. ft. of bench space	550	600	.2 point for each 10 over 550
No. of flowers per 100 sq. ft.	550	600	.2 point for each 10 flowers over 550
% Marketed at predet- ermined week	75%	95%	.25 point for each % marketed over 75%
Quality distrib <b>u</b> tion	20% Blue 50% Red 20% Green	· 25% 55% 10%	.2 point for each 1% over 50% in Re





# Cost Accounting - Snapdragon, Single Stem

- Cost of seed, about \$4.00 to \$5.00/trade packet of seed (2,000 seeds). Varies with variety, use the actual price paid.
- Soil mix a cubic yard of mixed, steamed soil to which fertilizer has been added couts about \$14.00.
- Overhead costs (depreciation, fuel, supplies, etc.) are about \$1.40/ sq. ft. of actual growing space/year.
- 4. Labor costs are about \$1.60/sq. ft. of actual growing space/year.
- 5. The marketing cost is close to 20% of the total of all other costs.



# Analysis of a Snapdragon Enterprise

Name		Date Started _	Ended
School _		Variety	Week group
County		Total receipts	x
Sq. ft. bench spacea		e <u> </u>	у
Total bloomsb		<u> </u>	nt Incomez
Blooms/100 sq. ft Income/100 sq. ft. of bench space (z ÷ a) x 100			
•	Poor	Average	Superior
1.	90%	95% % Marketed	100%
2.	500	550 Plants/IOO sq. ft.	600
3.	500	550 Flowers (blooms)/sq. ft.	600
4.	45%	50% % Snapdragons Grading "Red"	55%
5.	65%	75% Marketed at Predetermined We	95% eek
Place a red "G" on each line scale at goal set. Place a red "A" on each line scale at efficiency achieved.  Practices and conditions which Practices and conditions which contrilimited the production and buted to superior efficiency: income:			

Prepared by The Department of Agricultural Education, The Pennsylvania State University, in cooperation with the Pennsylvania Department of Education, and Pennsylvania Vocational Agriculture Teachers 1974.



Supervised Occupational Experience Record Forms
for
Ornamental Horticulture
(Revised)
1974

OUTDOOR FLOWER CROPS C 1-16

Chrysanthemum Plants C 2- 7 Gladiolus C 8-14

To be used with any production, occupational or work experience record book.

Department of Agricultural Education of The Pennsylvania State University in cooperation with Bureau of Vocational Education Pennsylvania Department of Education



#### Using the Forms

The five record sheets included in this unit are intended to be used with any production, occupational or work experience record book for high school vocational agriculture programs.

Approved Practices gives specific references to production or service practices that are generally accepted in industry as giving superior results if appropriately applied. A particular business firm might use variations of some of these practices because of unusual local conditions. Students carrying out production projects should find these references especially helpful. Students in agricultural production or services work experience will find them useful guides to what will be expected of them on the job.

Goals are stated in relation to efficiency. They are drawn up on the basis of comparisons of superior achievement with average achievement. The goals given are considered realistic in terms of production enterprises or work experience in production or services occupations. Successful businesses rank somewhere between "average" and "superior" in their goals.

The <u>Efficiency Factor</u> form provides a means for giving a numerical score on goal achievement. It is equally applicable to production enterprises, production occupations or service occupations. The scores are used as one base for comparisons in the judging of record books in regional and state record book contests.

Cost Accounting record forms serve as a guide for calculating the costs and profit in a production enterprise or a production experience.

These figures, together with production figures are used in the analysis of the enterprise.



The <u>Employment</u> <u>Achievement</u> form is used in place of the Cost Accounting form when the experiences involve employment in a service occupation rather than production.

The <u>Analysis</u> form should be marked at the beginning of the experience program with a "G" to indicate the goal that a student has set for himself. The same scales are marked with an "A" to indicate actual achievement at the end of the experience program. The analysis sheet provides for an evaluation of the practices used and their relationship to production or service and income.

Example of the Use of

Efficiency Factors and Production Goals

The <u>Pennsylvania Agricultural Production Program Record Book</u> provides space for the student to list appropriate efficiency factors for each productive enterprise. In the example below, the figures in the column "Local Efficiency Standards" will have been obtained through group study by the students with the help of the teacher. An analysis of records of similar enterprises completed in previous years by students in the same school will also serve as a guide.

PRODUCTION GOALS:	Potted Unrysantr	nemum	ENTERPRISE	
Efficiency Factor	Local Efficier Average	ncy Standards Superior	Student Goal	Student Achievement
Percent marketed	95%	100%	100%	97%
Number of 6" pots per 100 sq. ft. of bench space	75	100*	100	98
Number of blooms/6" pot	18	24	24	22
Percent of pots in 16" to 18" height range inclu- ding pot marketed	90%	95%	95%	92%

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<sup>\*</sup> Optimum number

# Approved Practices - Outdoor Chrysanthemum Plants

Pra	ctices	References
1.	Crop planning, selection, rotation schedule	P. 286-290
2.	Soil mixing and steaming	P. 286-290
3.	Watering	P. 286-290
4.	Fertilizing .	P. 286-290
5.	Pinching	P. 286-290
6.	Pest control	P. 286-290
7.	Marketing preparation	P. 286-290

Reference - BALL RED BOOK 12th EDITION, 1972



#### Goals Stated in Relation to Efficiency

Outdoor Chrysanthemum Plants

Eff	iciency Factors	Efficiency Average	Standards Superior
١.	Percent marketed	95 <b>%</b>	100%
2.	No. of plants on 100 sq. ft.	33	40
3.	Height and diameter of plants with appropriate container	18"	20"
4.	Percent marketed at pre-determined week	<b>7</b> 5	95
5.	Intense foliage and flower color	Good	Excellent
6.	Percent unblemished	90	95

Contest	Efficiency Factor	Min. Efficiency Level for Determining Score (average)	Max. Efficiency Level for Determin Score (superior)
Outdoor Chrysanthemum Plants	a. % Marketed	95%	100%
Flants	b. No. of plants per 100	33	0
	<ul><li>c. Height and diameter of plants with appropriate container</li></ul>	18"	20"
	d. % Marketed at a predeter- mined week	- 75%	95%



Efficiency Factor	Min. Efficiency Level for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)	Method for Determining Score
a. % Marketed	95%	100%	.2 points for each 1% over 95%
b. No. of plants per 100	33	0	.2 point for each plant over 33 max. !.4 pts.
<ul> <li>c. Height and diameter of plants with appropriate container</li> </ul>	18"	20"	.5 points for each one inch over 18"
d. % Marketed at a predeter mined week	- 75%	95%	.l point for each 1% over 75%



Cost Accounting - Outdoor Mums Chrysanthemum Plants

(to be grown in the field and lifted and placed in pots)

(cost per 100 sq. ft.)

- Cost of rooted cuttings varies from 9¢ to 18¢ each, depending upon variety. Use the actual price paid per 100 sq. ft.
- 2. Cost of containers varies from 10¢ to 20¢ each, use actual price paid.
- 3. Cost of land/100 sq. ft.
- 4. Cost of labor/100 sq. ft.
- 5. Overhead (supplies, equipment, etc.)/100 sq. ft.
- 6. The marketing cost is close to 20% of the total of all other costs.



## Analysis of Outdoor Chrysanthemum Plants

Name	ė		Date started	Ended
	ool		Variety	
Cou	nty		Total receipts	x
Sq.	ft. of field used	a	Total expenses	У
No.	of plants	<u>b</u>	Labor & management (x - y)	incomez
	of plants/100 sq. ft ÷ ₁) x 1000	C	Income per 100 sq. $(z \div a) \times 1000$	ft
	Poor	Averag	e	Superior
1.	90% % ma	95% rketed	plants	100%
2.	28 plant	33 s/100 s	q. ft.	40
3.	12" height &	16"-18 diamete	r of plants	20"
4.	60% % marketed	75% predet	ermined week	95%_
5.			ex flower color	cellent_
ń.			shed	
	Place a red "G" on each line on each lire scale at effici	scale ency ac	at goal set. Place hieved.	a red "A"
	ectices and conditions which ited the production and incom	ne.	Practices and cond contributed to sup	
		_		



## Approved Practices - Field Grown Gladiolus

Pra	<u>ctice</u>	Reference
١.	Crop planning, selection, rotation schedule	P. 312-316
2.	Site and soil selection and sterilization	P. 312-316
3.	Crop Sterilization	P. 312-316
4.	Watering	P. 312-316
5.	Fertilizing	P. 312-316
6.	Pest control	P. 312-316
7.	Marketing preparation	P. 312-316

Reference: COMMERCIAL FLOWER FORCING, 7th EDITION, LAURIE, KIPLINGER AND NELSON

## Goals Stated in Relation to Efficiency

#### Field Grown Gladiolus

		Efficiency	/ Standards
<u>Eff</u>	iciency Factors	Average	Superior
١.	Percent of stems marketed	80%	90%
2.	No. of plants per 100 sq. ft.	100	110
3.	No. of stems per 100 sq. ft.	150	170
4.	Percent marketed at pre-determined week	75%	95%
5.	Stem length	24"	36"
6.	No. of florets/stem (I-3 flowers open at harvest	12	16
7.	Percent blemish free	90%	95%



Contest	Efficiency Factors	Min. Efficiency Level for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)
Field Grown	a. Percent stems marketed	80%	90%
Gladiolus	b. No. of plants/100 sq. f	+. 100	110
	c. No. of stems/100 sq. ft	. 150	170
	d. Marketed at predetermin week	ed 75%	95%
	e. Stem length	24"	26"
	f. No. of florets at harve	est 12	16



y Factors	Min Efficiency Level for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)	Method for Determining Score
nt stems red	80%	90%	.05 point for every 1% above 80%
plants/100 sq. ft.	. 100	110	.l point for every l plant above 100
stems/100 sq. ft.	150	170	.05 point for every l stem above 150 (max. of
red at predetermined	d 75 <b>%</b>	95%	.o5 point for every 1% above 75%
engi <sup>-</sup> h	24"	26"	.l point or every l" above 24"
f florets at harvest	t 12	16	.25 points for every I above !2



#### Cost Accounting - Field Grown Outdoor Gladiolus

- I. Cost of #2 bulbs, varies from 5¢ to 10¢ each depending upon variety. Use the actual price paid per 100 sq. ft.
- 2. Cost of land/100 sq. ft.
- 3. Cost of labor/100 sq. ft.
- 4. Overhead (supplies, equipment, etc.)/100 sq. ft.
- 5. The marketing cost is close to 20% of the total of all other costs.



## Analysis of Field Grown Gladiolus

Name	9			Date started	Ended
Sch	oō I			Variety	
Cour	nţy		<del></del>	Total receipts	×
No.	of sq.	ft. of field space	e <u>        a                            </u>	Total expenses	у
		s produceds	<u>b</u>	Labor and manage $(x - y = z)$	ment income <u>z</u>
		: a) x 100		Income/100 sq. f (z + a) x 1000	
	Poor		Averag	e	Superior
١.	60%	Per	80% cent Stems	Marketed	90%
2.	90	P	100   lants/  100 s	q. ft.	110
3.	130		150 Stems/100 s	q. ft.	170
4.	70	Percent Marl	75 keted at Pr	edetermined Week	95
5.	20	Ste	24 em Length (	inches)	36
6.	10		No. of FI	orets	<u> </u>
7.	1	Оре	2 en Florets	at Harvest	3
:8. <sub></sub>	85		90 Blemish F	ree	95
		red "G" on each line scale at ef		at goal set. Pla hieved.	ce a red "A"
Prac lim	ctices an	nd conditions which production and in	ch nc <b>om</b> e.	Practices and co contributed, to s	nditions which uperior efficiency



Prepared by The Department of Agricultural Education, The Pennsylvania State University, in cooperation with the Pennsylvania Department of Education and Pennsylvania Vocational Agriculture Teachers. 1974

Supervised Occupational Experience Record Forms
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LANDSCAPE MAINTENANCE AND ESTABLISHMENT - D 1-20 Landscape Maintenance (except Turfgrass) D 2-10 Landscape Establishment (except Turfgrass) DII-18

To be used with any production, occupational or work experience record book.

Department of Agricultural Education
The Pennsylvania State University
in cooperation with
Bureau of Vocational Education
Pennsylvania Department of Education



#### Using The Forms

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The <u>Efficiency Factor</u> form provides a means for giving a numerical score on goal achievement. It is equally applicable to production enterprises, production occupations or service occupations. The scores are used as one base for comparisons in the judging of record books in regional and state record book contests.

Cost Accounting record forms serve as a guide for calculating the costs and profit in a production enterprise or a production experience.

These figures, together with production figures are used in the analysis of the enterprise.

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The <u>Employment Achievement</u> form is used in place of the <u>Cost Accounting</u> form when the experiences involve employment in a service occupation rather than production occupations.

The <u>Analysis</u> form should be marked at the beginning of the experience program with a "G" to indicate the goal that a student has set for himself. The same scales are marked with an "A" to indicate actual achievement at the end of the experience program. The analysis sheet provides for an evaluation of the approved practices used and their relationship to production or service and income.

Example of the Use of Efficiency Factors and Production Goals

The Pennsylvania Agricultural Production Program Record Book provides space for the student to list appropriate efficiency factors for each productive enterprise. In the sample below, the figures in the column "Local Efficiency Standards" will have been obtained through group study by the students with the help of the teacher. An analysis of records of similar enterprises completed in previous years by students in the same school will also serve as a guide.

PRODUCTION GOALS:	Potted C	Chrysanthemum_	ENTERPRISE	
Efficiency Factor	Local Efficie Average	ency Standards Superior	Student Goal	Student Achievement
Percent marketed	95%	100%	100%	97%
No. of 5" pots per 100 sq. ft. of bench space	75	100*	100	98
No. of blooms/6" pot	18	24	24	22
Percent of pots in 16" to 18" height range including pot marketed	90%	95%	95%	92%

<sup>\*</sup> Optimum number

## Approved Practices - LANDSCAPE MAINTENANCE (Except Turfgrass)

Pra	<u>ctice</u>	Reference
1.	Pruning	P. 12
2.	Mulching	P. 24
3.	Soil Sampling	P. 16
4.	Fertilizing	P. 16
5.	Watering	P. 24
6.	Pest Control	P. 25, Appendix D
	a. Weeds	
	b. Insects	
	c. Diseases	
7.	Winter Protection	P. 29 Appendix B
8.	Tree Removal, Repair, and Replacement	P. 15, 47
9.	Planting Garden Flowers	P. 28
10.	Ornamantal Pool Maintenance	P. 29
11.	Written Contract	P. 39-41

Reference: LANDSCAPE MAINTENANCE AND ESTABLISHMENT, A STUDENT

HANDBOOK, PSU 1968

## Goals Stated in Relation to Efficiency

# Landscape Maintenance (except Turfgrass)

Eff	iciency Factor		sy Standard Superior
١.	Profit	10%	15%
2.	Healthy and vigorous trees, shrubs and flowers	Good	Excellent
3.	Neat appearance of landscape	Good	Excellent
4.	Good renovation of landscape	Good	Excellent
5. ——	Satisfied customer	Good	Excellent

Contest	Eff	iciency Factors	Min. Efficiency Level for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)
Landscape	a.	Profit .	. 10%	15%
Maintenance (Except Turfgrass)	<u>or</u>	Employer Satisfaction	Good (90)	Excellent (100)
	b.	Health and Vigor		
		I. Trees	Good ( <u>90</u> )	Excellent (100)
		2. Shrubs	Good (90)	Excellent (100)
		3. Hedges	Good (90)	Excellent (100)
	c.	Freedom from pests and winter damage	Good (90)	Excellent (100)
	d.	Neatness (overall appearance)	Good (90)	Excellent (100)
•	е.	Renovation (improve- ment of plant material	Good (90)	Excellent (100)
	f.	Customer satisfaction	Good	Excellent



ciency Factors	Min. Efficiency Level for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)	Method for Determining Score
Profit	. 10%	15%	2 points for every 1% over 10%
Employer Satisfaction	Good (90)	Excellent (100)	l point for each point over 90
Health and Vigor			
l. Trees	Good (90)	Excellent (100)	l point for every score point over 90
2. Shrubs	Good (90)	Excellent (100)	I point for every
3. Hedges	Good (90)	Excellent (100)	score point over 90 I point for every score point over 90
Freedom from pests and winter damage	Good (90)	Excellent (100)	l point for every score point over 90
Neatness (overall appearance)	Good (90)	Excellent (100)	I point for every score point over 90
Renovation (improve- ment of plant material	Good (90)	Excellent (100)	l point for every score point over 90
Customer satisfaction	Good .	Excellent	



Cost Accounting - Landscape Maintenance (except Turfgrass)

- Labor use actual hourly wages.
- 2. Equipment cost divide original cost of equipment by anticipated years of life to get annual depreciation rate. Estimate annual hours of use, and divide this figure into annual depreciation to get hourly charge per machine.
- 3. Supplies use act al cost of plant materials, peat, fertilizer, etc.
  - Overhead includes rent, social security, taxes, utilities, secretarybookkeeper's salary, etc.
- 5. Profit difference between receipts and expenses (usually about 10% of receipts).



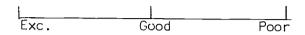
## Analysis of Landscape Maintenance (except Turfgrass)

Name			Date started Ended Ended				
Sch	∞1		Total receipts				
Cou	nty		Total expenses	у			
		·	Labor and manageme	entz			
			Profit $(x - (y + z) = pro$	ofit)			
=	Poor	Averag	e	Superior			
١.	5%	10%		15%			
		Profit	•				
2.	poor	good		excellent			
		Health and Vigor of	Plant Material				
3.	poor	good Freedom from Pest a	and Winton Injury	excellent			
		Freedom from Pesi a	and winter injury	•			
4.	poor	good Neatness (Overall	Annearance	excellent			
1							
5.	poor	good Renovation (Improvement	of Plant Material)	excellent			
c				excellent			
6.	poor	good Fulfillment of Wri	tten Contract	<u> </u>			
7.	poor	boop		excellent			
	-	customer Satisfaction (Minimum of One Season)					
		red "G" on each line scale line scale at efficiency ac		e a red "A"			
		nd conditions which production and income:	Practices and con contributed to su	ditions which perior efficiency			
		-					



## Landscape Maintenance (except Turfgrass) Employee

Personal Satisfaction (Do you enjoy the work?)



?. Monetary Increases (after 3 to 6 months)



3. Fringe Benefits (insurance, retirement, other)



4. Opportunity for Advancement (in I to 5 years)





## Analysis of Landscape Maintenance (except Turfgrass) Employee

ne	Date stat	rtedEnded
1001	Total Hou	ırs
ınty	lncome pe	er year
loyer		
iress		
Poor	Average	Superior
poor (80)	good (90) Employer Satisfaction	excellent (100)
poor	good Relations with Other Emplo	excellent
96%	98% Accuracy in Performing Wo	100% prk
_4%	2% Complaints	1%
90%	95% Neatness and Cleanliness of	100% Work
poor	good Customer Satisfaction	excellent
		et. Place a red "A"
		and conditions which ed to superior efficiency
	Poor Poor 96%  4%  90%  Poor Place a red on each line ctices and co	Poor Average  poor (80) good (90)  Employer Satisfaction  poor good  Relations with Other Emplo  96% 98%  Accuracy in Performing Wo  4% 2%  Complaints  90% 95%  Neatness and Cleanliness of  poor good  Customer Satisfaction  Place a red "G" on each line scale at goal son each line scale at efficiency achieved.

#### Approved Practices - Landscape Establishment (except Turfgrass)

Pra	<u>ctice</u>	Reference
١.	Laying out landscape site	A p. 34-39 Appendix C
2.	Cost estimating	B p. 97-100
3.	Bidding	B p. 97-100
4.	Contracting (written)	A p. 39-41
5.	Grading	A p. 45
6.	Soil modification	A p. 42-44
7.	Installing landscape structures	A p. 45, Appendix F
8.	Purchasing nursery stock materials and supplies	A p. 47-56
9.	Moving existing plants and installing plant material	A p. 11-31
10.	Maintenance under guarantee	Contractor's Written Guarantee

Reference: A - LANDSCAPE MAINTENANCE AND ESTABLISHMENT - A STUDENT HANDBOOK, PSU 1968.

B - LANDSCAPE DESIGN - A STUDENT HANDBOOK, PSU 1968.

## Goals Stated in Relation to Efficiency

## Landscape Establishmen: (except Turfgrass)

Eff	iciency Factors	Efficiency Average	Standards Superior
1.	Profit	10%	15%
2.	Healthy vigorous trees, shrubs, flowers, ground covers and vines	Good	Excellent
3.	Quality of plant material at the end of one year	Good Exc	ellent
4.	Neat appearance of landscape	Good	Excellent
5.	Satisfied Customer	Good	Excellent

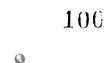


Contest	Efficiency Factors	Level for Determining Score (average)	Level for Determining Score (superior)
Landscape Establishment	a. Profit	10%	15%
(Except Turfgrass)	<u>or</u> Employer satisfaction	Good (90)	Excellent (100)
	b. Percent replacement co	st 5%	0%
	c. Quality of plant mater at end of 1st year	ial Good (90)	Excellent (100)
	d. Quality of physical structures at end of I year	Good (90) st	Excellent (100)
	e. Customer satisfaction	Good (90)	Excellent (100)





<del></del> _			
ficiency Factors	Level for Determining Score (average)	Level for Determining Score (superior)	Method for Determining Score
Profit	10%	15%	.2 points for every 1% over 10%
Employer satisfaction	Good (90)	Excellent (100)	I point for every I point over 90
Percent replacement cos	s† 5%	0%	.2 point for every 1% under 5%
Quality of plant materi at end of lst year	al Good (90)	Excellent (100)	.l point for every score point over 90
Quality of physical stpuctures at end of Is year	Good (90) st	Excellent (100)	.l point for every score point over 90
Customer satisfaction	Good (90)	Excellent (100)	.l point for every score point over 90



Cost Accounting - Landscape Establishment (except Turfgrass)

- 1. Labor use actual hourly wages.
- Equipment cost divide original cost of equipment by anticipated years of life to get annual depreciation rate. Estimate annual hours of use, and divide this figure into annual depreciation to get hourly charge per machine.
- 3. Supplies use actual cost of plant materials, peat, fertilizer, etc.
- 4. Overhead include rent, social security, taxes, utilities, secretary-bookkeeper's salary, etc.
- 5. Profit difference between receipts and expenses (usually about 10% of receipts.)

D-14

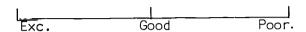
## Analysis of Landscape Establishment (except Turfgrass)

Nam	e	Date startedE	Date started Ended		
Sch	001		x		
Jou	nty	Total expenses	у		
		Labor and management	Z		
		Profit			
		(x - (y + z) = profi			
	Poor	Average	uperior		
	5%	IO% Percent Profit	15%		
		Percent Profit	<u>-</u>		
•	80%	90% % Plants Established Under Guarantee, by Plant Co	100%		
	7	% Plants Established Under Guarantee, by Plant Co	s†		
•	Poor	Good Exc Quality of Plant Material at end of 1st Year	ellent		
•	Poor	Good Exc Quality of Physical Structures at End of 1st Ye	ellent ar		
	Poor		ellent		
•	- 501	Fulfillment of Written Contract	errein		
•	Poor	Good Exc Customer Satisfaction	ellent		
	Place "A" or	a red "G" on each line scale at goal set. Place n each line scale at efficiency achieved.	a red		
		and conditions which Practices and condition e production and income. tributed to superior ef			

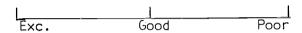


#### Landscape Establishment (except Turfgrass) Employee

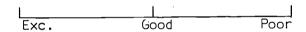
I. Personal Satisfaction (Do you enjoy the work?)



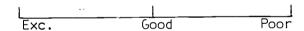
2. Monetary Increases (after 3 to 6 months)



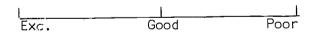
3. Fringe Benefits (insurance, retirement, other)



4. Opportunity for Advancement (in 1 to 5 years)



5. Variety of educational experience according to occupational goals





# Analysis of Landscape Establishment (except Turfgrass) Employee

Na	me		Date starte	edEnded	
School			Total Hours		
			Income Per Year		
			1/		
_					
	Poor	Avera	age	Superior	==
1.	poor (80)	good (9	90)	excellent (100)	
2	2005				
۷.	poor	Relations with (	Other Employe	excellent es	
3.	96%	98% Accuracy in Per		100%	
4.	4%	2% Complai	nts	<del>d</del>	
	90%				
		Neatness and Clea	anliness of W	100% ork	
6.	poor	good Customer Sat	isfaction	excellent	
		ous romer sur	1310011011		
	Place a red each line sc	"G" on each line scale ale at efficiency achi	e at goal set eved.	. Place a red "A" o	on
		nditions which uction and income:		nd conditions which to superior efficie	ency:
				•	



Prepared by The Department of Agricultural Education, The Pennsylvania State University, in cooperation with the Pennsylvania Department of Education and Pennsylvania Vocational Agriculture Teachers. 1974

# Supervised Occupational Experience Record Forms for Ornamental Horticulture (REVISED) 1974

#### NURSERY PRODUCTION - FIELD GROWN TREES-E 1-70

European White Birch	E 2-8	White Pink	E 39-43
Thornless Honey Locust	E 9-13	. Canada Hemlock	E 44-48
Pin Oak	E14-18	Flowering Crabapple	E 49-53
European Mountain Ash	E19-23	Japanese Maple	E <b>54-5</b> 8
Norway Maple	E24-28	Kwazan Cherry	E <b>59-</b> 63
Norway Spruce	E29-33	Flowering Dogwood	E 64-69
Concolor Fir	E34-38	_	

To be used with any production, occupational or work experience record book

Department of Agricultural Education
The Pennsylvania State University
in cooperation with
Bureau of Vocational Education
Pennsylvania Department of Education



#### Using The Forms

The five record sheets included in this unit are intended to be used with any production, occupational or work experience record book for high school vocational agriculture programs.

Approved Practices gives specific references to production or service practices that are generally accepted in industry as giving superior results if appropriately applied. A particular business firm might use variations of some of these practices because of unusual local conditions. Students carrying out production projects should find these references especially helpful. Students in agricultural production or services work experience will find them useful guides to what will be expected of them on the job.

Goals are stated in relation to efficiency. They are based on the comparisons of superior achievement with average achievement. The goals given are considered realistic in terms of production enterprises or work experience in production or services occupations. Successful businesses rank somewhere between "average" and "superior" in their goals.

The <u>Efficiency Factor</u> form provides a means for giving a numerical score on goal achievement. It is equally applicable to production enterprises, production occupations or service occupations. The scores are used as one base for comparisons in the judging of record books in regional and state record book contests.

Cost Accounting record forms serve as a guide for calculating the costs and profit in a production enterprise or a production experience.

These figures, together with production figures are used in the analysis of the enterprise.



The Employment Achievement form is used in place of the Cost

Accounting form when the experiences involve employment in a service occupation rather than production occupation.

The <u>Analysis</u> form should be marked at the beginning of the experience program with a "G" to indicate the goal that a student has set for himself. The same scales are marked with an "A" to indicate actual achievement at the end of the experience program. The analysis sheet provides for an evaluation of the approved practices used and their relationship to production or service and income.

Example of the Use of Efficiency Factors and Production Goals

The <u>Pennsylvania Agricultural Production Program Record Book</u>
provides space for the student to list appropriate efficiency factors
for each productive enterprise. In the example below, the figures in
the column "Local Efficiency Standards" will have been obtained through
group study by the students with the help of the teacher. An analysis
of records of similar enterprises completed in previous years by
students in the same school will also serve as a guide.

PRODUCTION GOALS: Potted Chrysanthemum

Efficiency Factor L	ocal Efficie Average	ency Standards Superior	Student Goal	Student Achievement
Percent marketed	95%	100%	100%	97%
Number of 6" pots per 100 sq. ft. of bench space	75	100*	100	98
Number of blooms/6" pot	18	24	24	22
Percent of pots in 16" to 18" height range in- cluding pot marketed	90%	95%	95 <b>%</b>	92

**ENTERPRISE** 



<sup>\*</sup> Optimum number

Approved Practices - Field Grown B&B or Bare Root Deciduous trees European White Birch, Betula pendula "alba"

Pra	ctice_	Re	ference
1.	Block planning, species selection, site and	Р.	35-43, 105-106, 203
2.	Soil preparation	Р.	107-109
3.	Lining out and planting	Р.	109-112, 129
4.	Watering	Р.	112
5.	Fertilizing	Р.	114-117
6.	Pest control (weeds, insect, disease)	Р.	121-127
7.	Pruning, supporting, and root pruning	Р.	117-121
8.	Digging	Р.	134-138
9.	Grading and market preparation	Р.	139-141, 178-187

Reference - NURSERY PRODUCTION, A STUDENT HANDBOOK PSU, 1971

# Goals Stated in Relation to Efficiency

Nursery Production, Field Grown B&B or Bare Root Deciduous Trees European White Birch, Betula pendula "alba"

Eff	iciency Factors	Efficiency Average	Standards Superior
1.	Percent Marketed	90%	95%
2.	Number of plants per 1000 sq. ft.	63	70
3.	Years of plant growth to marketing at I" caliper	5	4
4.	Symmetrical branching	Good	Excellent
5.	Blemish free	90%	95%
6.	Percent of trees conforming to AAN Standards	80%	90%

ſ	T	٦
	ı	
(	7	٦

Contest	Eff		Min Efficiency I for Determining Score (Average)	Max Efficiency Level for Determining Score (Superior)	Me†
Field Grown B & B or Bare Root Deciduous		% marketed	90%	95%	.1 poin over 9
Trees	b.	Number of plants	63	70	.015 po
European White Birch	<b>.</b>	per 1000 sq. ft.			1000 so
Betula pendula	1				
"a ba"	c.	% of crop reaching a l" caliper or better	90%	95%	.l poin over 9
	d.	Years of plant growth to market a l" calipe tree		4	.5 poin months 5 year
	е.	<pre>% blemish-free trees (free of cisease, insect, &amp; mech.</pre>	90%	95%	.  poir over 9
	f.	% conforming to AAN Standards	80%	90%	.05 pci over 8

<sup>\*</sup> Plant growth must include age of liner plus years of growth in the field.



			و مصور المحال
Level	in Efficiency for Determining core (Average)	Max Efficiency Level for Determining Score (Superior)	Method of Determining Score
eted	90%	95%	.l point for every % poirt over 90%
of plants 00 sq. ft.	63	70	.015 point for every plant/ 1000 sq. ft. over 63 - not to exceed 70 plants/1000 sq. ft
rop reaching aliper or	90%	95%	.l point for every % point over 90
of plant growth* ket a l" caliper	5	4	.5 point for every six (6) months harvested before the 5 years
ish-free trees of cisease, , & mech.	90%	95%	.l point for every র point over 90র
orming to AAN rds	80%	90%	.05 points for every ₹ point over 80%

rowth must include age of liner plus years of growth in the field.





#### Cost Accounting - Nursery Production

Field Grown B & B or Bare Root Deciduous Trees, White Birch, Betula pendula "alba":

- l. Cost of lining out stock from  $5\mathfrak{c}$  to  $35\mathfrak{c}$  per plant. Use actual price paid.
- 2. Cost of land per 1000 sq. ft.
- 3. Cost of labor chargeable to this crop, about \$167 per 1000 sq. ft.
- 4. Overhead (supplies, equipment) per 1000 sq. ft.
- 5. Marketing cost average about 20% of sum of all other costs.



# Analysis of EAB or Bare Root Deciduous from.

Furopean white Birch, Betula pendula "alba"

imo:			Nate started	Ende <sub>0</sub>
			Genus	Specific.
ounty			Total receipts _	
പൂചനം ക്ക	t/used	a	Total expenser	- /
Umborn St	trees sold B&B_ trees sold PR_ trees/1000 sa.		Labor and marage $(x - y = z)$ Income/1000 sq. $(z \div a) \times 1000$	ement indome
na ingganagan da ingganaga ng pangan Managan da ingganagan ng pangan	Poor	Averaç	ge .	<sup>C</sup> uper <sup>(</sup> or
١.		Percent Mar	ke*ed	
·	*Iumbe:	r of plants/l(	000 square feet	
٠.	t of Crop	e reaching I"	caliper or be+t	er
1.	Years	io market "	caliper trees	e .
·.	75% Percent of	80% trees conform	ing to AAM Stand	an Jards
٠.	Poor	Good Symmetrical br		Excellent .
7.	<u>85</u> °	ু গুণ Blemish f	ree	75,4
Flame a r ≈cale at	ed "G" or each efficiency achi	line scale at eved. _	goal set. Pla	te a red Alon each III.
	and conditions the production a			conditions.which con- uperion efficiency:



#### Approved Practices - Field Grown B & B or Bare Root Deciduous Trees Thornless Honeylocust, Gleditsia triancanthos inermis

Pra	ctice	Re	ference
١.	Block planning, species selection, site and	р.	35-43, 105-106, 203
2.	Soil preparation	р.	107-109
3.	Lining out and planting	р.	109-112, 128-129
4.	Watering	р.	112
5.	Fertilizing	р.	114-117
6.	Pest control (weeds, insect, disease)	р.	121-127
7.	Pruning, supporting, and root pruning	р.	117-121
8.	Digging	р.	134-138
9.	Grading and market preparation	р.	139-141, 178-187

Reference - NURSERY PRODUCTION, A STUDENT HANDBOOK PSU, 1971



# Goals Stated in Relation to Efficiency

Nursery Production Field Grown B&B or Bare Root Deciduous Trees Thornless Honeylocust, Gleditsia tricanthos inermis

Eff	iciency Factors	Efficiency Average		
١.	Percent Marketed	90%	95%	
2.	Number of plants per 1000 sq. ft.	63	70	
3.	Symmetrical branching	Good	Excellen+	
4.	Blemish free	90%	95%	
5.	Years of plant growth to marketing at I" caliper	5	4	
6.	Percent of trees conforming to AAN Standards	80%	90%	

Contest	Eff	L iciency Factors	evel fo	Efficiency r Determining e (Average)	Max. Efficiency Level for Determining Score (Superior)	Met
Field Grown B&B or Bare Root Deciduous	а.	% marketed		90%	95%	.2 pc
Trees	b	Number of plants per 1000 sq. ft.		63	70	.015 sq. f
Thornless Honey Locust	У					ceed
Gleditsia tricanthos inermis	С.	% of crop reaching a   1/2" caliper		90%	95%	.2 pc 90%
	d.	Years of plants groto market a   1/2 of tree		5	4	.5 po month
	e.	% blemish-free tree (free of insect, disease, & mech. da		90%	95%	.2 po 90%
	f.	% conforming to AAN Standards	١	80%	90%	.05 p 80%

<sup>\*</sup>Plant growth must include age of liner plus years of growth in the field.



Leve	Min. Efficiency I for Determining Score (Average)	Max. Efficiency Level for Determining Score (Superior)	Method of Determining Score
arketed	90%	95%	.2 points for every % over 90%
ber of plants 1000 sq. ft.	63	70	.015 point for every plant/1000 sq. ft. over 63 - not to exceed 70 plants/1000 sq. ft.
f crop reaching 1/2" caliper	· 90%	95%	.2 point for every % point over 90%
rs of plants growtl market a    /2 cal e		4	.5 points for every six (6) months harvested before 5 years
lemish-free trees ee of insect, ease, & mech. dama	ge) 90%	95%	.2 points for every % point over
onforming to AAN ndards	80%	90%	.05 point for every % point over 80%

growth must include age of liner plus years of growth in the field.



#### Cosi Accounting - Nursery Production

#### Field Grown B&B or Bare Root Deciduous Trees, Thornless Honeylocust, Gleditsia tricanthos inermis

- 1. Cost of lining out stock from  $5\mathfrak{C}$  to  $35\mathfrak{C}$  per plant. The actual price paid.
- 2. Cost of land per 1000 sq. ft.
- 3. Cost of labor chargeable to this crop, about \$167 per 1000 sq. ft.
- 4. Overhead (supplies, equipment) per 1000 sq. ft.
- 5. Marketing cost average about 20% of sum of all other costs.



#### Analysis of B&B or Bare Root Deciduous Trees Thornless Honeylocust, Gleditsia tricanthos inermis

t <sub>i</sub> ama	Date started Ended
School	GenusSpecies
County	Total receipts rate x
Square feet/useda	Total expenses kg y
Number of trees sold B&B	Labor and management incomez
Number of trees sold BR	(x-y = z)
Number of trees/1000 sq. ft	Income/1000 sq. ft. (z ÷ a) x 1000
	3
Poor A	verage Superior
1. Percen	90% 95% et Marketed
56 Number of plan	63 70 ts/1000 square feet
9	5 4 To reach   1/2" caliper
4.	Good Excellent
- 85%	cal branching 90% 95% mish free
75% Percent of trees co	80% 90% onforming to AAN Standards
Place a red "G" on each line scale scale at efficiency achieved.	e at goal set. Place a red A on each line
Practices and conditions which limited the production and income	Practices and conditions which con- tributed to superior efficiency:



### Approved Practices - Field Grown B&B and Bare Root Deciduous Trees Pin Oak, Quercus palustris

Pra	ectice	References
١.	Block planning, species selection, site and soil selection, and crop rotation	P. 35-43, 105-106, 203
2.	Soil preparation	P. 107-109
3.	Lining out and planting	P. 109-112, 128-129
4.	Watering	P. 112
5.	Fertilizing	P. 114-117
6.	Pest control (weeds, insect, disease)	P. 121-127
7.	Pruning, supporting, and root pruning	P. 117-121
8.	Digging	P   134-138
9.	Grading and market preparation	P. 139-141 178-187

Reference - NURSERY PRODUCTION, A STUDENT HANDBOOK PSU, 1971

# Goals Stated in Relation to Efficiency

Nursery Production Field Grown B&B and Bare Root Deciduous Trees Pin Oak, Quercus palustris

Eff	iciency Factors	Efficiency Average	Standards Superior
١.	Percent Marketed	90%	95%
2.	Number of plants per 1000 sq. ft.	63	70
3.	Symmetrical branching	Good	Excellent
4.	Blemish free	90%	95%
5.	Years of plant growth to Marketing at I" caliper.	6	5
6.	Percent of trees conforming to AAN Standard	80%	90%



Contest	Efficiency Factors	Min. Efficiency Level for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)
Field Grown B&B and Bare Root	a. % Marketed	90%	95%
Deciduous Trees Pin Oak Quercus palustris	b. Number of plant per 1000	. 63	80
	<ul><li>c. Years of plants growth* to mark a !" caliper tr</li></ul>	ket .	5
	d. % of crop reach a !" caliper	ing 90%	95%
	e. % blemish-free (free of insect disease, and me damage)	-	95%
	f. % conforming to Standard	AAN 80%	90%

<sup>\*</sup> Plant growth must include the age of the liner plus the years of growth







, ffic	ciency Factors	Min. Efficiency Level for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)	Method of Determining Score
• /	% Marketed	. 90%	95%	.2 points for every % point over 90%
	Number of plants per 1000	63	80	.015 point for every plant/i000 sq. ft. abor 63 - not to exceed 70 plants/1000 sq. ft.
. (	Years of plants growth* to market a l" caliper tree	6	5	.5 points for every 6 months under 5 years
	% of crop reaching a !" caliper	90%	9 <b>5%</b>	.l point for every % point over 90%
	% blemish-free tree (free cf insect, disease, and mech. damage)	es 90%	95%	.5 point for every % point over 80%
	% conforming to AAN Standard	80%	90%	.05 point for every 6 months harvested befor 6 years

Plant growth must include the age of the liner plus the years of growth in the field.







# Cost Accounting - Nursery Production Field Grown B&B and Bare Root Deciduous Trees, Pin Oak, Quercus palustris

- Cost of lining out stock from 5¢ to 35¢ per plant. Use actual price paid.
- 2. Cost of land per 1000 sq. ft.
- 3. Cost of labor chargeable to this crop, average \$167 per 1000 sq. ft.
- 4. Overhead (supplies, equipment) per 1000 sq. ft.
- 5. Marketing cost average 20% of sum of all other costs.



# Analysis of B&B and Bare Root Deciduous Trees Pin Oak, Quercus palustris

Name		Date Started	Ended
School		Genus	Species
County		Total receipts_	· X
Square fe	et used	a_Total expenses	
Number of	trees sold B&B		ment incomez
Number of	trees sold BR	(x - y =z)	
Number of	trees/1000 sq. ft	Income/1000 sq. (z + a) x 1000	ft
		(2 + a) x 1000	
	Poor	Average	Superior
	88%	90%	95%
1.	Per	cent Marketed	
		63	
2.	Number of p	63 lants/1000 square fee	
۷,	Number of p	Tailis, Toob square rec	• •
	7		
3.	Years of gro	wth to <b>r</b> each I" calip	
4	Poor		Excellent
4.	Symme	trical branching	
	85%	90%	95%
5.		lemish free	, J. P
	75%	80%	90%
6.	Percent of Trees	conforming to AAN Sta	nuar u
	85%	90%	95%
7.		having I" cal. at mar	·
Place a r	ed "G" on each line s	cale at goal set. Pl	ace a red "A" on each
	e at efficiency achei		
	and conditions which he production and inc		d conditions which con-
ı milled l	ne production and inc "	ome. Illuled 10	superior efficeincy:



### Approved Practices - Field Grown B&B and Bare Root Deciduous Trees European Mountain Ash, Sorbus aucuparia

Pra	<u>octice</u>	Reference
1.	Block planning, species selection, site and soil selection, and crop rotation	P. 35-43, 105- 106, 203
2.	Soil preparation	P. 107-109
3.	Lining out and planting	P. 109-112, 129
4.	Watering	P. 112
5.	Fertilizing	P. 114-117
6.	Pest control (weeds, insect, disease)	P. 121-127
7.	Pruning, supporting, and root pruning	P. 117-121
8.	Digging	P. 134-138
9.	Grading and market preparation	P. 139-141, 178- 187

Reference - NURSERY PRODUCTION - A STUDENT HANDBOOK, PSU - 1971



# Goals Stated in Relation to Efficiency

Nursery Production, Field Grown B&B and Bare Root Deciduous Trees, European Mountain Ash, Sorbus aucuparia

Fíí	iciency Factors	Efficiency Standards		
	TOTOLOGY COLOR	Average	Superior	
1.	Percent Marketed	63	70	
2.	Number of plants/1000 sq. ft.	90%	95%	
3.	Symmetrical branching	Good	Excellent	
4.	Blemish free	90%	95%	
5.	Years of plant growth to marketing at I" caliper	5	4	
6.	Percent of trees conforming to AAN Standard	. 80%	90%	



			Min. Efficiency	Max. Efficiency
	<b></b>		Level for Determining	Level for Determining
Contest	Eff	iciency Factors	Score (average)	Score (superior)
Field Grown B&B and Bare Root	а.	♯ Marketed	90%	95%
Deciduous Trees European Mountain Ash Sorbus	b.	Number of plants per 1000 sq. ft.	63	70
aucuparia	С.	% of crop reaching I" caliper or bett		95%
	d.	Years of plants gr to market a !" cal tree		4
	е.	<pre>% blemish-free tre (free of insect, disease and mech. injury)</pre>	ees 90 <b>%</b>	95%
	f.	% conforming to AA Standard	N 80%	90%

<sup>\*</sup> Plant growth must include age of liner plus years of growth in the fie



	iciency Factors	Min. Efficiency Level for Determini Score (average)		Method of Determining
	Terefley Factors	Score (average)	Score (superior)	Score
a.	% Marketed	90%	95%	.2 points for every $\%$ point over 90%
b.	Number of plants per 1000 sq. ft.	63	70	.05 point for every plant per 1000 sq. ft. over 63 - not to exceed 70 plants per 1000 sq. f
c.	% of crop reaching I" caliper or bette		95%	.l point for every % point over 90%
d.	Years of plants gro to market a l" cali tree		4	.5 points for every six (6) months harvested before the 4 years
<b>a</b>	<pre>% blemish-free tree (free of insect, disease and mech. injury)</pre>	es 90%	95%	.l point for every % point over 90%
•	% conforming to AAN Standard	80%	90%	.05 point for every % point over 80%

Plant growth must include age of liner plus years of growth in the field.

# Cost Accounting - Nursery Production Field Grown B&B and Bare Root Deciduous Trees, European Mountain Ash, Sorbus aucuparia

- 1. Cost of lining out stock from  $5\mathfrak{c}$  to  $35\mathfrak{c}$  per plant. Use actual price paid.
- 2. Cost of land per 1000  $s_{4}$ . ft.
- 3. Cost of labor chargeable to this crop, average \$167 per 1000 sq. ft.
- 4. Overhead (supplies, equipment) per 1000 sq. ft.
- 5. Marketing cost average 20% of sum of all other costs.

#### Analysis of B&B and Bare Root Deciduous Trees European Mountain Ash, Sorbus aucuparia

Name		Date Started	Ended	
School		Genus	Species	
County		Total receip	ts	x
Square fe	eet/used	a Total expens	es	у
Number of	trees sold B&B	Labor and ma	nagement income	Z
Number of	trees sold BR	(x - y = z)		
Number of	trees/1000 sq. ft.	Income/1000 (z ÷ a) × 10	sq. ft	
		(2 = a) x 10		
	Poor	Average	Superior	
	88%	90%	95%	
1.	Pe	ercent Marketed		
	56	63	70	
2.		plants/1000 square		
	6	5	4	
3.	Years o	f growth to l" cali	per	
	, , , , , , , , , , , , , , , , , , ,			
	Poor	Good	Excellent	
4.	Symr	metrical branching		
	85%	90%	95%	
5.		Blemish free		
	. 75%	. 80%	90%	
6.	Percent of trees	s conforming to AAN	Standard	
	85%	90%	95%	
7.	·	having I" cal. at	·	
Place a r	red "G" on each line	scale at goal set	Place a red "A" on ea	ach lir
	efficiency achieved		Trace a rea // on ea	
	s and conditions which the production and in		es and conditions which d to superior efficiend	
				•



### Approved Practices - Field Grown B&B and Bare Root Deciduous Trees Norway Maple, Acer platanoides

Pra	ctice	Reference
1.	Block planning, species selection, site and soil selection, and crop rotation	P. 35-43, 105- 106, 203
2.	Soil preparation	P. 107-109
3.	Lining out and planting "	P. 109-112, 123- 219
4.	Watering	P. 112
5.	Fertilizing	P. 114-117
6.	Pest control (seeds, insects, disease)	P. 121-127
7.	Pruning, supporting, and root pruning	P. 117-121
8.	Digging	P. 134-138
9.	Grading and market preparation	P. 139-141, 178-187

Reference - NURSERY PRODUCTION, A STUDENT HANDBOOK, PSU, 1971

#### Goals Stated in Relation to Efficiency

Nursery Production, Field Grown B&B and Bare Root Deciduous Trees, Norway Maple, Acer platanoides

		Efficiency Standards		
Efficiency Factors		Average	Superior	
١.	Percent Marketed	90%	95%	
2.	Number of plants per 1000 sq. ft.	63	70	
3.	Symmetrical branching	Good	Excellent	
4.	Blemish free	90%	95%	
5 <b>.</b>	Years of plant growth to marketing at I" caliper	6	5	
6.	Percent of trees conforming AAN Standard	80%	90%	



Contest	Effic	ciency Factors	Min. Efficiency Level for Determing Score (average)	Max. Efficiency Level for Determing Score (superior)	M
Field Grown B&B and Bare Root	a. :	% Marketed	90%	95%	Po
Deciduous Trees Norway Maple Acer platanoides		Number of plants për 1000 sq. ft.	63	70	р 6. Р
prarameraes		% of crop reaching I" caliper or bette		9 <b>5</b> %	р(
	•	Years of plants gro to market a l" cali tree		5	r me
		% blemish-free tree (free of disease, insect, and mech. damage)	s 90%	95 <b>%</b>	po
		% conforming to AAN Standard	80%	90%	. <b>(</b>

<sup>\*</sup> Plant growth must include age of liner and years of growth in the figure  $^{*}$ 



iciency Factors	Min. Efficiency Level for Determing Score (average)	Max. Efficiency Level for Determing Score (superior)	Method of Determining Score
% Marketed	90%	95%	.2 points for every $\%$ point over 90%
Number of plants per 1000 sq. ft.	63	. 70	.015 point for every plant/1000 sq. ft. over 63 - not to exceed 70 plants/1000 sq. ft.
		95%	.l point for every % point over 90%
•		5	.5 points for every 6 months harvested before the 6 years
<pre>% blemish-free tree (free of disease, insect, and mech. damage)</pre>	es 90%	95%	.l point for every % point over 90%
% conforming to AAN Standard	N 80%	. 90%	.05 point for every $\%$ point over $80\%$
	Number of plants per 1000 sq. ft.  % of crop reaching !" caliper or bette Years of plants gro to market a !" cali tree  % blemish-free tree (free of disease, insect, and mech. damage)  % conforming to AAN	Level for Determing Score (average)  Marketed  90%  Number of plants per 1000 sq. ft.  of crop reaching a l" caliper or better  Years of plants growth* to market a l" caliper tree  blemish-free trees free of disease, insect, and mech. damage)  conforming to AAN  80%	Level for Determing Score (superior)  # Marketed 90% 95%  Number of plants 63 70  # of crop reaching a 90% 95%  I" caliper or better  Years of plants growth* 6 5  to market a !" caliper tree  # blemish-free trees 90% 95%  (free of disease, insect, and mech. damage)  # conforming to AAN 80% 90%

<sup>\*</sup> Plant growth must include age of liner and years of growth in the field.



# Cost Accounting - Nursery Production Field Grown B&B and Bare Root Deciduous Trees, Norway Maple, Acer platanoides

- 1. Cost of living out stock from  $5\phi$  to  $35\phi$  per plant. Use actual price paid.
- 2. Cost of land per 1000 sq. ft.
- 3. Cost of labor chargable to this crop, average \$167 per 1000 sq. ft.
- 4. Overhead (supplies, equipment) per 1000 sq. ft.
- 5. Marketing cost average 20% of sum of all other costs.



# Analysis of B&B and Bare Root Deciduous Trees Norway Maple, Acer platanoides

Name	Da	te started	Ended
School	Ge	nus	Species
	To		
Square fee	et useda_To	tal expenses	у
Number of	trees sold B&BLa	bor and management	incomez
Number of	trees scld BR(x	-y=z)	
Number of	trees/1000 sq. ftln	come/1000 sq. ft ÷ a) x 1000	
		<b>-</b>	perior
1.	88% 90% Percent Ma	rketed	95%
2.	56 63 Number of plants/!	000 square feet	70
3.	7 6 Years of growth	to !" caliper	5
4.	Poor Good Symmetrical		cellent
5 <b>.</b>	85% 90% Blemish		95%
6.	75% 80% Percent of trees confor		90% rd
7.	85% 90% Percent of crop having		95 <b>%</b> ng
	red "G" on each line scale at le at efficeincy achieved.	goal set. Place a	a red "A" on each
	s and conditions which the production and income:		onditions which con- erior efficeincy:



### Approved Practices - Field Grown B&B Evergreen Trees Norway Spruce, Picea abies

Pra	actice	Reference
١.	Block planning, species selection, site and soil selection, and crop rotation	P. 35-43, 105-106, 203
2.	Soil preparation	P. 107-109
3.	Lining out and planting	P. 109-112
4.	Watering	P. 112
5.	Fertilizing	P. 117-114
6.	Pest control (weeds, insects, and disease)	P. 121-127
7.	Pruning, supporting, and root pruning	P. 117-121
8.	Digging	P. 134-138
9.	Grading and market preparation	P. 139-141, 178-187

Reference: NURSERY PRODUCTION, A STUDENT HANDBOOK, PSU, 1971 -



#### Goals Stated in Relation to Efficiency Norway Spruce, Picea abies

Nursery Production - Field Grown B&B Evergreen Trees

	•	Efficiency Standards		
Eff	iciency Factors	Average	Superior	
1.	% Marketed	90%	95%	
2.	Number of plants per 1000 sq. ft.	63	70	
3.	Dense and symmetrical growth	Good	Excellent	
4.	% blemish free	90%	95%	
5.	Intense color	Good	Excellent	
6.	Years of growth to marketing a 2-3' sheared plant	6	5	
7.	% conforming to AAN Standard	80%	90%	

Contest	Eff	iciency Factors	Level for	r Determining (average)	Level for Do	etermining 1
B & B Evergreen Trees	a.	% Marketed	90	0%	95	7
Norway Spruce Picea abies	b.	Number of plants p 1000 sq. ft.	er 6.	3	70	1
	С.	% of crop reaching 2-3' height	a 90	0%	95	ज १०
	d.	Years of plants gr market a 2-3" shea plant*		5	. 4	ŗ
	е.	% blemish free tre (free of insect, d and mech. injury)		2%	95	<b>%</b>
	f.	% conforming to AA Standard	N 80	0%	909	<b>%</b>

Min. Efficiency



Max. Efficiency

st Years of growth must include age of liner plus years of growth in the f

Lev iciency Factors	Min. Efficiency vel for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)	Method for Determining Score
% Marketed	90%	95%	.l point for every % point over 90%
Number of plants per 1000 sq. ft.	63	70	.05 point for every plant, 1000 sq. ft. over 63 - not to exceed 70 plants/ 1000 sq. ft.
% of crop reaching a 2-3' height	90%	95%	.l point for every % point over 90%
Years of plants growth market a 2-3" sheared plant*	h to 5	4	.5 points for every 6 months harvested before 5 years
% blemish free trees (free of insect, disea and mech. injury)	90% ase,	95%	.l point for every % point over 90%
% conforming to AAN Standard	80%	90%	.05 point for every % point over 80%

ears of growth must include age of liner plus years of growth in the field



#### Cost Accounting - Nursery Production Field B&B Evergreen Trees, Norway Spruce, Picea abies

- 1. Cost of lining out grafts about 35¢ per plant. Use actual price paid.
- 2. Cost of land per 1000 sq. ft.
- 3. Cost of labor chargable to this crop, averages \$167 per 1000 sq. ft.
- 4. Overload (supplies, equipment) per 1000 sq. ft.
- 5. Marketing cost average 20% of sum of all other costs.

## Analysis of Nursery Production Field B&B Evergreen Trees, Norway Spruce, Picea abies

Name		Date Started_	Ended
			Species
			<u> </u>
Sq. ft.	of field space	a_Total expenses	у
Total pl	ants	Labor and Mana	gementz
No. of p	lants/1000 sq. ft	$(x - y = z)$ Income/1000 so $(z \div a) \times 1000$	ı. f†
	Poor	Average	Superior
1.	80%	90% Plants marketed	95%
2.	56	63 Plants/1000 sq. ft.	70
3.	6 Years o	5 . f growth to havesting cr	4 Cop
4.	Poor	Good e and symmetrical growth	Excellent
5.	85%	90% % Blemish free	95%
6.	Poor	Good Intense color	Excellent
7.	75% % Co	80% nforming to AAN Standard	90%
8.	85% % of cr	90% op reaching 2.3 ft., she	95 <b>%</b> Pared
Place a line sca	red "G" on each l le at efficeincy	ine scale at goal set.	Place a red "A" on each
	s and conditions the production an		and conditions which con- to superior efficiency:



#### Approved Practices - Field Grown B&B Evergreen Trees Concolor Fir, Abies concolor

Pra	ctice		Reference
1.	Block Planning, species Selection, Site and Soil Selection, and Crop Rotation	Ρ.	35-43, 105-106, 203
2.	Soil Preparation	Р.	107-109
3.	Lining out and Planting	Ρ.	109-112
4.	Watering	Р.	112
5.	Fertilizing	Ρ.	114-117
6.	Pest Control (Weeds, Insects, and Disease)	Ρ.	121-127
7.	Pruning, Supporting, and Root Pruning	Ρ.	117-121
8.	Digging	Ρ.	134-138
9.	Grading and Marketing Preparation	Ρ.	139-141, 178- 187

Reference: NURSERY PRODUCTION, A STUDENT HANDBOOK, PSU 1971

#### Goals Stated in Relation to Efficiency Concolor Fir, Abies concolor

Nursery Production - Field Grown Evergreen Trees

	•	<u>Efficience</u>	cy Standards
<u>Ef</u> 1	ficiency Factors ·	Average	Superior
1.	Marketed	90%	95%
2.	No. of plants per 1000 sq. ft.	63	70
3.	Years of growth to marketing a 2-3' sheared plant	6	5
4.	Dense and symmetrical growth	Good	Excellent
5.	Blemish free	90%	95%
6.	Intense color	Good	Excellent
7.	% Conforming to AAN Standard	80%	90%



,- cca + #ig \$#		Min. Efficiency	•	
Contest	Efficiency Fac	Level for Determining tors Score (average)		Met
B&B Evergreen Trees Concolor Fir Abies	a. % Marketed	90%	95%	.l poi over 9
concolor	b. Number of 1000 sq. f		70	.015 p 1000 s to exc
	c. % of crop 2-3' heigh		95%	.l poi 90%
		lants growth 6 a 2-3' sheared	5 .	.5 poi harves
		free trees 90% nsect, disease, injury)	95%	.l poi over 9
	f. Conforming Standard	to AAN 80%	90%	.05 po over 8

 $<sup>\</sup>star$  Years of growth must include age of liner plus years of growth in the fi



Lev iency Factors	Min. Efficiency rel for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)	Wethod for Determining Score
% Marketed	90%	95%	.l point for every % point over 90%
Number of plants per 1000 sq. ft.	63	70	.015 point for every plant/ 1000 sq. ft. over 63 - not to exceed 10 plants/1000 sq.
% of crop reaching 2-3' height	90%	95%	.l point for every % point ov
/ears of plants grov to market a 2-3' she plant*		5	.5 point for every 6 month harvest before 6 years
& Blemish free trees (free of insect, dis and mech. injury)		95%	.l point for every % point over 90%
Conforming to AAN Standard	80%	90%	.05 point for every % point over 80%

ears of growth must include age of liner plus years of growth in the field.

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### Cost Accounting - Nursery Production Field Grown B&B Evergreen Trees, Concolor Fir, Abies concolor

- 1. Cost of lining out stock from  $5\mathfrak{c}$  to  $35\mathfrak{c}$  per plant. Use actual price paid.
- 2. Cost of land per 1000 sq. ft.
- 3. Cost of labor chargable to this crop, about \$167 per 1000 sq. ft.
- 4. Overhead (supplies, equipment) per 100 sq. ft.
- 5. Marketing cost about 20% of sum of all other costs.

## Analysis of Nursery Production Field B&B Evergreen Trees, Concolor Fir, Abies concolor

Name		Date started	Ended
School		Genus	Species
County		Total receip	ts
Sq. ft. o	f field space	<u>a</u> Total expense	es
Total plan	nts		nagement
No. of plate (b ÷ a) x	1000	$(z \div a) \times 100$	sq. f† 00
		~	
	Poor	Average	Superior
1	80%	90% Piants Marketed	95%
2.	56 F	63 Plants/1000 sq. ft.	70
3.	7 Years of growth t	6 to harvesting crop at	5 2 to 3' height
4.	Poor Dense	Good and symmetrical grow	Excellent th
5.	85%	90% % Blemish Free	95%
6.	Poor	Good Intense color	Excellent
7.	75% % Cont	80% forming to AAN Standa	90% rd
8.	85% % reaching 2 -	90% 3 ft. in height at 9	95% 5% marketing
	ed "G" on each lir e at efficiency ad		Place a red "A" on each
	and conditions who roduction and income		es and conditions which cor d to superior efficie cy:



### Approved Practices - Field Grown B&B Evergreen Trees White Pine, Pinus strobus

Fra	ctice	Reference	
١.	Block planning, species selection, site and soil selection, and crop rotation	Р.	35-43, 105-106, 203
2.	Soil preparation	Р.	107-109
3.	Lining out and planting	Р.	109-112
4.	Watering	Р.	112
5.	Fertilizing	Р.	114-117
6.	Pest control (weeds, insects, and disease)	Р.	121-127
7.	Pruning, supporting, and root pruning	Ρ.	117-121
8.	Digging	Р.	137-138
9.	Grading and market preparation	Р.	139-141, 178-187

Reference: NURSERY PRODUCTION - A STUDENT HANDBOOK, PSU, 1971

#### Goals Stated in Relation to Efficiency White Pine, Pinus strobus

Nursery Production - Field Grown Evergreen Trees

		Efficienc	y Standards
Ef.f	iciency Factors	Average	Superjor
١.	% Marketed	90%	95%
·,	No. of plants per 1000 sq. ft.	83	70
3.	Years of growth to marketing a 2-3' sheared plant	6	5
4.	Dense and symmetrical growth	Good	Excellent
r, •	% Blemish free	90%	95%
ń.	Intense color	Good	Excellent



Contest	Eff	iciency Factors	Min. Efficiency Level for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)	Meth
B & B Evergreen Trees	а.	% Marketed	90%	95%	.l poi over 9
White Pine Pinus strobus	b.	Number of plants per 1000 sq. ft.	63	70	.015 p 1000 s to exc
	c.	% of crop reaching a 2-3 height	90%	95%	.l poi over 9
	ď.	Years of plants gro to market a 2-3' sh plant*		5	.5 poi harves
	е.	<pre>% Blemish free tree (free of insect, di and mech. injury)</pre>		95%	.l poi over 9
	f.	% Conforming to AAN Standard	80%	90%	.05 po point
			•		

<sup>\*</sup> Years of growth must include age of liners plus years of growth in the fi



	•		
ency Factors	Min. Efficiency Level for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)	Method of Determining Score
Marketed	90%	95%	.l point for every % point over 90%
mber of plants r 1000 sq. ft.	63	. 70	.015 point for each plant/ 1000 sq. ft. over 63 - not to exceed 70/1000 sq. ft.
of crop reaching 2-3'height	90%	95%	.l point tor every % point over 90%
ars of plants gro market a 2-3' sh ant*	•	5	.5 point for every 6 month harvested before 6 years
Blemish free tree ree of insect, di d mech. injury)	•	95%	.l point for every % point over 90%
Conforming to AAN andard	80%	90%	.05 point for every % point over 80%

rs of growth must include age of liners plus years of growth in the field.

#### Cost Accounting - Nursery Production Field Grown B&B Evergreen Trees, White Fine, Pinus strobus

- 1. Cost of lining out stock from  $5\mathfrak{c}$  to  $35\mathfrak{c}$  per plant. Use actual price paid.
- Cost of land about \$98 per 1000 sq. ft.
- 3. Cost of labor chargeable to this crop, about \$167 per 1000 sq. ft.
- 4. Overhead (supplies, equipment) per 1000 sq. ft.
- 5. Marketing cost about 20% of sum of all other costs.

#### Analysis of Nursery Production Field B&B Evergreen Trees, White Pine Pinus strobus

Name			Date sta	rted	End	ed
School			Genus		_Species	
County		<u> </u>	Total re	ceipts		
		ace				
			<u>b</u> Labor an	d Manager		
No. of p (b + a)	lants/1000 × 1000	sq. ft	(x - y = Income/I (z ÷ z)	z) 000 sq. f × 1000	÷+	
	Poor	A	verage		Superior	
1.	80%	Plant	90% s Marketed		95%	
2.	56	Plants/	63 1000 sq. ft		70	
3.	7 Years of	growth to ha	6 rvesting cr	op at 2 t	5 o 3¹ height	
4.	Poor	Dense and sy	Good mmetrical g		Excellent	
5.	85%		90% mish Free		95%	
6.	Poor	-	Good nse color		Excellent	
7.	75%	% Conforming	80% to AAN Sta	ndard	90%	
٤. ,	85% % reaching	2 - 3 ft. he	90% ight, shear	ed, at ma	95% rketing	
Place a r line scal	ed "G" on e at effic	each line sca iency achieve	le at goal d.	set. Pla	ce a red "A'	' on each
		tions which ion and incom			conditions uperior eff	



#### Approved Practices - Field Grown B&B Evergreen Trees Canada Hemlock, Tsuga canadensis

Pra	ctice		Reference
١.	Block planning, species selection, site and soil selection, and crop rotation	Р.	35-43, 105-106, 203
2.	Soil preparation	Р.	107-109
3.	Lining out and planting	Р.	109-112
4.	Watering	Ρ.	112
5.	Fertilizing	Ρ.	114-117
6.	Pest control (weeds, insects, and disease)	Ρ.	121-127
7.	Pruning, supporting, and root pruning	Р.	117-121
8.	Digging	Р.	134-138
9.	Grading and market preparation	Р.	139-141, 178-187

Reference: NURSERY PRODUCTION - A STUDENT HANDBOOK, PSU, 1971

#### Goals Stated in Relation to Efficiency Canada Hemlock, Tsuga canadensis

Nursery Production - Field Grown Evergreen Trees

		Efficiency	Standards
Eff	iciency Factors	Average	Superior
١.	% Marketed	90%	95%
2.	No. of plants per 1000 sq. ft.	63	70
3.	Years of growth to marketing a 3-4' sheared plant	6	5
4.	Dense and symmetrical growth	Good	Excellent
5.	% Blemish free	90%	95%
6.	Intense color	Good	Excellent
7.	% Conforming to AAN Standard	80%	90%

Contest	Efficiency Factors	Min. Efficiency Level for Determining Score (average)	Max, Efficiency Level for Determining Score (superior)	Method
B & B Evergreen Trees,	a. % Marketed	*90%	95%	.l point over 90%
Canada Hemlock Tsuga	b. % of crop reachin 4-5' height or be		95%	.l point over 90%
canadensis	c. Number of plants 1000 sq. ft.	per 63	70	.015 poi 1000 sq. to excee
	d. Years of plants of to market at 3-4 sheared plant*		5	.5 point 6 months 6 years
	e. % Blemish free (free from insec- diseases and mech injury		95%	.l point over 90%
	f. % Conforming to / Standard	AAN 80%	90%	.05 poin
				:

<sup>\*</sup> Years of growth must include age of liners rlus years of growth in the fiel







cy Factors	Min. Efficiency Level for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)	Method for Determining Score
rketed	90%	95%	.l point for every % point over 90%
crop reaching height or bett	90% ter	95%	.1 point for every % point over 90%
er of plants pe sq. ft.	er 63	70	.015 point for each plant/ 1000 sq. ft. over 63 - not to exceed 70/1000 sq. ft.
s of plants gro arket at 3-4' red plant*	owth .6	5	.5 points for every (six) 6 months harvesting before 6 years
emish free ee from insects eases and mech.	90%	95%	.l point for every % point over 90%
onforming to AAN adard	√ 80%	90%	.05 point for every % point over 80%

s of growth must include age of liners clus years of growth in the field.

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#### Cost Accounting - Nursery Production Field Grown Evergreen Trees, Canada Hemlock, Tsuga canadensis

- 1. Cost of lining out stock from %6 to  $35^{\mbox{\it c}}$  per plant. Use actual price paid.
- 2. Cost of land 1000 sq. ft.
- 3. Cost of labor chargeable to this crop, about \$167 per 1000 sq. ft.
- 4. Overhead (supplies, equipment) per 1000 sq. ft.
- 5. Marketing cost about 20% of sum of all other costs.

#### Analysis of Nursery Production Field B&B Evergreen Trees, Canada Hemlock, Tsuga canadensis

Name		Date started	Ended
School _		Genus	Species
		Total receipts_	•
		a_Total expenses_	
Total p	lants	$\frac{b}{(x - y = z)}$	ementz
No. of (b ÷ a)	plants/4000 sq. × 1000	ftIncome/I000 sq. (z ÷ a) x 1000	ft
	Poor	Average	Superior
1.	80%	90% % Plants Marketed	95%
2.	56	63 Plants/1000 sq. ft.	70
3.	7 Year	6 s of growth to harvesting cr	5 Op
4.	Poor	Good Dense and symmetrical growth	Excellent
5.	85%	90% % Blemish free	95%
6.	Poor	Good Intensity of color	Excellent
7.	75%	80% % Conforming to AAN Standard	
8.	85% % Reaching	90% 3–4 ft. height, sheared, at	95% marketing
	red "G" on eac ale at efficien	th line scale at goal set. Facy achieved.	Place a red "A" on each
	es and condition		nd conditions which to superior efficiency:



#### Approved Practices - Field Grown B&B and Bare Root Deciduous Ornamental Trees Flowering Crabapple, Malus cultivars

<u>Pra</u>	ctice	Re	ference
1.	Block planning, species selection, site and soil selection, and crop rotation	Ρ.	35-43, 105-106 203
2.	Soil preparation	Р.	107-109
3.	Lining out and planting	Р.	109-113, 129
4.	Watering	Р.	112
5.	Fertilizing	Р.	4-    7
6.	Pest control (weeds, insect, disease)	Р.	121-127
7.	Pruning, supporting, and root pruning	Р.	117-121
8.	Digging	Р.	<b>34-</b>   38
9.	Grading and market preparation	Р.	139-141, 178-187

Reference: NURSERY PRODUCTION - A STUDENT HANDBOOK, PSU, 1971

### Goals Stated in Relation to Efficiency Flowering Crabapple, Malus cultivars

Nursery Production - Field Grown B&B and Bare Root Ornamental Trees

	actions and a second second	Efficiency	/ Standards
<u>E</u> ff	iclency Factors	Average	Superior
١.	% Marketed	90%	95%
2.	No. of plants/1000 sq. ft.	63	70
3.	Years of plant growth to marketing a   1/2" caliper plant	5	4
4.	Symmetrical branching	Good	Excellent
5.	Blemish free trees	90%	95%
6.	% Conforming to AAN Standard	80%	90%

Contest	Eff	iciency Factors	Min. Efficiency Level for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)	Meti
Field Grown B&B and Bare Root	а.	% Marketed	90%	95%	.l poi
Deciduous Ornamental Trees	b.	% of crop reaching 2" caliper at harvesting	90%	95%	.l poi over 9
Flowering Crabapple Malus cultiva		Number of plants per 1000 sq. ft.	63	70	.015 pover 6
	d.	* Years of plants growth to market at I I/2" caliper	5	4	.5 po months 5 year
	е.	<pre>% blemish free tree (free of insect, disease, and mechanical injury</pre>	es 90%	95%	.l po over
	f.	% Conforming to AAN Standard	N 80%	90%	.05 po

<sup>\*</sup> Plant growth must include age of liner plus years of growth in the field.



ency Factors	Min. Efficiency Level for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)	Method for Determining Score
Marketed	90%	95%	.l point for every % point over 90
of crop reaching caliper at rvesting	90%	95%	.l point for every % point over 90
mber of plants r 1000 sq. ft.	63	70	.015 point for every plant over 63 - not to exceed 70 plants/1000 sq. ft.
Years of plants bwth to market   1  /2" caliper	5	·· 4	.5 points for every six months harvested before 5 years
plemish free tre ree of insect, sease, and chanical injury	es 90%	95%	.l point for every % point over 90
Conforming to AA andard	N 80%	90%	.05 point for every % point over 80

nt growth must include age of liner plus years of growth in the field.



#### Cost Accounting - Nursery Production Field Grown B&B and Bare Root Deciduous Ornamental Trees, Flowering Crabapple, Malus cultivars

- Cost of grafted lining out stock about 35¢ per plant. Use actual price paid.
- 2. Cost of land 1000 sq. ft.
- 3. Cost of labor chargeable to this crop, about \$167 per 1000 sq. ft.
- 4. Gverhead (supplies, equipment) per 1000 sq. ft.
- 5. Marketing cost about 20% of sum of all other costs.



## Analysis of Field Grown B&B and Bare Root Ornamental Flowering Crabapple, Malus cultivars

Name	Date started	Ended
School	Genus	Species
County	Total Receip	ts
Sq. ft. used	a_Total Expense	es
No. sold B&B	<u>b</u> Labor - Mgmt	· Income
No. sold Bare Root	(x - y = z) c_Income/1000 s	sq. ft
No. per 1000 sq. ft (b + c ÷ a) x 1000	(z ÷ a) × 100	
Poor	Average	Superior
80%	90% % Marketed	100%
85% 2. % of crop re	90% eaching 2" caliper at	95% harvest
6  Years of growt	5 Th to reach    /2" cal	4 liper
56 4. No. PI	63 ants per 1000 sq. ft.	70
Poor Sym	Good metrical Branching	Excellent
80%	90% % Blemish Free	95%
70% 7. % Confo	80% rming to AAN Standard	90%
Place a red "G" on each l line scale at efficiency	ine scale at goal set achieved.	• Place a red "A" on each
Practices and conditions limited the production an		and conditions which ed to superior efficiency:
	167	



## Approved Practices - Field Grown B&B Deciduous Ornamental Trees Japanese Maple Acer palmatum

Pra	ctice	Reference
۱.	Block planning, species selection, site and soil selection, and crop rotation	P. <b>35-43</b> , 105-106, 203
2.	Soil preparation	P. 107-109
3.	Lining out and planting	P. 109-112, 129
4.	Watering	P. 112
5.	Fertilizing	P. 114-112
6.	Pest control (weeds, insect, disease)	P. 121-127
7.	Pruning, supporting, root pruning	P. 117-121
8.	Digging	P. 134-138
9.	Grading and market preparation	P. 139-141, 178-187

Reference - NURSERY PRODUCTION - A STUDENT HANDBOOK, PSU, 1971

#### Goals Stated in Relation to Efficiency Japanese Maple, Acer palmatum

Nursery Production, Field Grown B&B Ornamental Trees

Ef	ficiency Factors	Efficiency Average	Standards Superior
1.	% Marketed	90%	95%
2.	Years of plant growth to marketing at I" caliper	6	5
3.	No. of plants/1000 sq. ft.	. 63	70
4.	Symmetrical branching	Good	Excellent
5.	Blemish free trees	90%	95%
6.	% conforming to AAN Standard	80%	90%



	Contest	Eff	liciency Factor	Min. Efficiency Level for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)	Meth
	Field Grown B&B Deciduous	a.	% Marketed	90%	95%	.l poin over 90
	Ornamental Trees Japanese Maple Acer	b.	Number of plants po	er 63	70	.015 po 1000 sq to exce sq. ft.
	palmatum	c.	% of crop reaching a I" caliper or be	90% tter	95%	.l poin
		d.	Years of plants gro to market a l" cal tree (base measurem	iper	5 yrs.	.5 poin vested
ם 1 1		e.	<pre>% Unblemished trees (free of insect, disease, and mechan cal injury)</pre>		95%	.l poin above 9
, r		f.	% Conforming to AAN Standard	N 80%	90%	.05 poi above 8

<sup>\*</sup> Plant growth must include age of liner plus years of growth in the field.







Loncy Factor	Min. Efficiency evel for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)	Method of Determining Score
1arketed	90%	95%	.l point for every % point over 90%
nber of plants pe 00 sq. ft.	r 63	70	.015 point for every plant/ 1000 sq. ft. over 63 - not to exceed 70 plants/1000 sq. ft.
of crop reaching " caliper or bet	90% ter	95%	l point for each 1% above 9.
ers of plants grow market a !" calip ee (base measureme	oer '	5 yrs.	.5 point for every Îl year ha vested before 6 years
Inblemished trees tee of insect, tease, and mechan injury)	90% i <b>–</b>	95%	.l point for each % point above 90%
onforming to AAN ndard	80%	90%	.05 point for each % point above 80%
1			

t growth must include age of liner plus years of growth in the field.

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# Cost Accounting - Nursery Production Field Grown B&B Deciduous Qrnamental Trees, Japanese Maple, Acer palmatum

- Cost of grafted lining out stock about 35¢ per plant. Use actual price paid.
- 2. Cost of land about \$98 per 1000 sq. ft.
- 3. Cost of labor chargeable to this crop, about \$167 per 1000 sq. ft.
- 4. Overhead (supplies, equipment) per 1000 sq. ft.
- 5. Marketing cost about 20% of sum of all other costs.



#### Analysis of Field Grown B&B Ornamental Trees Japanese Maple, Acer palmatum

Name	4		Date started	Ended
School			Genus	Species
County			Total Receipts_	x
Sq. ft. u	sed	a_	Total Expenses_	у
No. sold l	B&B	b	Labor-Mgmt. Inc	omez
No. sold	Bare Root	C	(x - y = z) Income/1000 sq. $(z \div a) \times 1000$	ft
No. per I	000 sq. f a) x 1000	†·	_	
	Poor	Aver	age	Superior
1.	80%		keted	100%
2.	85% % of Cro	90 p Reaching I" Cal	iper or Better	
3.	7	Years of Growth	•	iper
4.	56	No. Plants p	oer 1000 sq. ft.	70
5.	Poor		od al Branching	Excellent
6.	80%	90 % Blemi	sh Free	95%
7.	70%	80 % Conforming 1	o% to AAN Standard	90%
		each line scale ciency achieved.	at goal set. F	Place a red "A" on each
		itions which tion and income:		and conditions which to superior efficiency:
	, <u>, , , , , , , , , , , , , , , , , , ,</u>			



#### Approved Practices - Field Grown B&B and Bare Root Deciduous Ornamental Trees - Kwazan Cherry, Prunus serrulata

Pra	actice		Reference
١.	Block planning, species selection, site and soil selection, and crop rotation	Ρ.	35-43, 105-106, 203
2.	Soil preparation	Ρ.	107-109
3.	Lining out and planting	Р.	109-112, 129
4.	Watering	Р.	112
5.	Fertilizing	Ρ.	114-117
6.	Pest control (weeds, insect, disease)	Р.	121-127
7.	Pruning, supporting, and root pruning	۲.	117-121
8.	Digging	Р.	134-138
9.	Grading and market preparation	Р.	139-141, 187-187

Reference - NURSERY PRODUCTION, A STUDENT HANDBOOK, PSU, 1971.

#### Goals Stated in Relation to Efficiency

Nursery Production - Field Grown Ornamental Trees, Kwazan Cherry, Prunus serrulata B&B and Bare Root

Efficiency Footons 1			Standards ·
E T T	iciency Factors	Average	Superior
1.	% Marketed	90%	95%
2.	Years of plant growth to marketing at I" caliper	5	4
3.	No. of plants/1000 sq. ft.	63	70
4.	Symmetrical branching	Good	Excellent
5.	Blemish free trees	90%	95%
6.	% Conforming to AAN Standard	80%	90%

Contest	Efficiency Factors	Min. Efficiency Level for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)	Ме
Field Grown B&B and	a. % Marketed	90%	95%	.l po over
Bare Root Deciduous Ornamental	b. % of crop reaching the second seco		95%	.l po over
Trees Kwazan Cherry	c. Years of growth market at !" call		4	.5 po harve
Prunus serrulata	d. Number of plants per 1000 sq. ft.	63	70	.015 over plant
	e. % Blemish free to (free of insect, and mechanical in	disease,	95%	.l po
	f. % Conforming to A Standard	AAN 80%	90%	.05 p over

<sup>\*</sup> Plant growth must include age of liner plus years of growth in the field



L ficiency Factors	Min. Efficiency evel for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)	Method of Determining Score
% Marketed	90%	95%	.i point for every % point over 90%
% of crop reaching I" caliper at harvest	90%	95% -	.l point for every % point over 90%
Years of growth to market at I" caliper	5	4	.5 point for every 6 months harvested before 5 years
Number of plants per 1000 sq. ft.	63	70	.015 point for every plant over 63 - not to exceed 70 plants/1000 sq. ft.
<pre>% Blemish free trees (free of insect, dise and mechanical injury</pre>		95%	.l point for every % point over 90%
% Conforming to AAN Standard	80%	90%	.05 points for every % poin over 80
		•	

Plant growth must include age of liner plus years of growth in the field.



#### Cost Accounting - Nursery Production Field Grown B&B and Bare Root Deciduous Ornamental Trees, Kwazan Cherry, Prunus serrulata

- Cost of grafted lining out stock about 35¢ per plant. Use actual price paid.
- 2. Cost of land 1000 sq. ft.
- 3. Cost of labor chargeable to this crop, about \$167 per 1000 sq. ft.
- 4. Overhead (supplies, equipment) per 1000 sq. ft.
- 5. Marketing cost about 20% of sum of all other costs.

#### Analysis of Field Grown B&B and Bare Root Deciduous Ornamental Trees, Kwazan Cherry, Prunus serrulata

Na <b>m</b> e			_Date started	Ended
School			Genus	Species
County			_Total Receipts	×
Sq. ft. us	sed	a	_Total Expenses	У
No. sold E	B&E	b	_Labor-Mgnt. Ind	come z
Nc. sold E	Bare Root_	с	(x - y = z) Income/1000 sq	. ft.
No. per 10	000 sq. f1 a) x 1000	t	(z ÷ a) × 1000	
	Poor	Aver	age	Superior
l÷	80%	% Mar	% keted	100%
2.	85% % of Cr	90 op Reaching I" Ca	liper or Better	at Harvest
3.	6	Years of Growth t		per
4.	56		r ICOO sq. ft.	70
5.	Poor		d I Branching	Excellent
6.	80%	90 % Blemi		95%
7.	70%	80 % Conforming to		90%
Place a re line scale	d "G" on at effic	each line scale a	t goal set. Pl	ace a red "A" on each
		tions which ion and income:		d conditions which to superior efficiency:



### Approved Practices - Field Grown B&B Deciduous Ornamental Trees Flowering Dogwood, Cornus florida

Pra	ctice	Reference
1.	Block planning, species selection, site soil selection, and crop rotation	P., 35-43, 105-106, 203
2.	Soil preparation	P. 107-109
3.	Lining out and planting	P. 109-112, 129
4.	Watering	P. 112
5.	Fertilizing	P. 114-117
6.	Pest control (weeds, insect, disease)	P. 121-217
7.	Pruning, supporting, and root pruning	P. 117-121
8.	Digging	P. 134-138
9.	Grading and market preparation	P. 139-141, 178-187

Reference - NURSERY PRODUCTION, A STUDENT HANDBOOK, PSU, 1971

#### Goals Stated in Relation to Efficiency

Hursery production, Field Grown, B&B Ornamental Trees, Flowering Dogwood, Cornus Florida

		Efficiency Standards		
Eft	iciency Factors	Average	Superior	
١.	% Marketed	90%	95%	
2.	Years of plant growth to marketing at 1 1/2" caliper	6	5	
3.	No. of plants/1000 sq. ft.	63	70	
4.	Symmetrical branching	Good	Excellent	
5.	Blemish free trees	90%	95%	
υ.	% conforming to AAN Standard	80%	90%	

Contest	Efficiency	Factors	Min. Efficiency Level for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)	Meth
Field Grown B&B Deciduous	a. % Mark	eted	90%	95%	.1 poin
Ornamental Trees Flowering Dogwood		rop reaching caliper or	90%	95%	.l poir over 90
Cornus florida		of plants groket at 1/2" r*		F	.5 poir harvest
	d. Number 1000 s	of plants pe q. ft.	er 63	70	.015 pc 1000 sc point t
	(free	ish free tree of insect, e, and mech. )	es 90%	95%	.l poir over 90
	f. % Conf Standa	orming to AAN rd	80%	90%	.05 poi

<sup>\*</sup> Plant growth must include age of liner plus years of growth in the field.

18%





	Min. Efficiency	Max. Efficiency	
	Level for Determining	Level for Determining	Method of Determining
ency Factors	Score (average)	Score (superior)	Score
Marketed	90%	95%	.l point for every % point over 90%
of crop reaching  /2" caliper or  tter	90%	95%	.l point for every % point over 90%
ars of plants gro market at l 1/2' liper*		5	.5 point for every 5 months harvest before 6 years
mber of plants pe 100 sq. ft.	er 63	70	.015 point for every plant/ 1000 sq. ft. over 63 - max. point total 1.05
Blemish free tree ree of insect, sease, and mech. jury)	90 <b>%</b>	95%	.l point for every % point over 90%
: Conforming to AAN andard	N 80%	90%	.05 point for every 1% over 80%

nt growth must include age of liner plus years of growth in the field.

18%

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#### Cost Accounting - Nursery Production Field Grown B&B Deciduous Ornamental Trees, Flowering Dogwood, Cornus florida

- 1. Cost of lining out stock or grafts from 5¢ to 35¢ per plant. Use actual price paid.
- Cost of land, per 1000 sq. ft.
- Cost of labor chargeable to this crop, about \$167 per 1000 sq. ft.

E-67

- Overhead (supplies, equipment) per 1000 sq. ft.
- Marketing cost about 20% of sum of all other costs.

#### Analysis of Field Grown B&B Ornamental Trees Flowering Dogwood, Cornus florida

Name		Date started	Ended
			Species
			x
			У
No. sold B&B		b Labor-Mgmt. Inc	comez
No. sold Bar	e Root	(x - y = z) c Income/1000 sq (z : a) x 1000	• f†
Nc. per 1000 (b + c ÷ a)	sq. ftx 1000		
F	oor	Average	Superior
Ī.	30%	90% % Marketed	100%
2. 8	of Crop Reaching	90% I I/2" Caliper or B	leŕter at Harvest
3.		6 th to Reach   1/2" C	
4.	No. PI	63 ants per 1000 sq. ft	70
5 <b>.</b>	Poor Symm	Good netrical Branching	Excellent
6.	80%	90% % Blemish Free	95%
7.	70% % Confo	80% orming to AAN Standar	90% rd
Place a red line scale	"G" on each line at efficiency ach	scale at goal set. ieved.	Place a red "A" on each
	nd conditions whic production and i		and conditions which d to superior efficiency:
		185 F-68	



Prepared by The Department of Agricultural Education, The Pennsylvania State University, in cooperation with the Pennsylvania Department of Education and Pennsylvania Vocational Agriculture Teachers. 1974

# Supervised Occupational Experience Record Forms for Ornamental Horticulture (Revised)

#### NURSERY PRODUCTION - FIELD GROWN SHRUBS - E 71-138

Convexleaf Holly	E	71-78	Pfitzer Juniper	Ε	101-106
Hybrid Rhoddoendron	Ε	79-83	Dwarf Bruning Bush	Ε	107-112
Mugo Pine	Ε	84-88	Forsythia	Ε	113-118
American Arborvitae	Ε	89-94	Lilac	Ε	119-124
Spreading Yew	Ε	95-100	Mockorange	Ε	125-130
			Viburnum	Ε	131-137

To be used with any production, occupational or work experience record book.

Department of Agricultural Education
The Pennsylvania State University
in cooperation with
Bureau of Vocational Education
Pennsylvania Department of Education



#### Using The Forms

The five record sheets included in this unit are intended to be used with any production, occupational or work experience record book for high school vocational agriculture programs.

Approved Practices gives specific references to production or service practices that are generally accepted in industry as giving superior results if appropriately applied. A particular business firm might use variations of some of these practices because of unusual local conditions. Students carrying out production projects should find these references especially helpful. Students in agricultural production or services work experience will find them useful guides to what will be expected of them on the jct.

Coals are stated in relation to efficiency. They are drawn up on the basis of comparisons of superior achievement with average achievement, The goals given are considered realistic in terms of production enterprises or work experience in production or services occupations. Successful businesses rank somewhere between "average" and superior" in their goals.

The Efficiency Factor form provides a means for giving a numerical score on goal achievement. It is equally applicable to production enterprises, production occupations or service occupations. The scores are used as one base for comparisons in the judging of record books in regional and state record book contests.

Cost Accounting record forms serve as a guide for calculating the costs and profit in a production enterprise or a production experience. These figures, together with production figures are used in the analysis of the enterprise.,

The Employment Achievement form is used in place of the Cost Accounting



form when the experiences involve employment in a service occupation rather than production occupation.

The Analysis form should be marked at the beginning of the experience program with a "G" to indicate the goal that a student has set for himself. The same scales are marked with an "A" to indicate actual achievement at the end of the experience program. The analysis sheet provides for an evaluation of the approved practices used and their relationship to production or service and income.

The Pennsylvania Agricultural Production Program Record Book provides space for the student to list appropriate efficiency factors for each productive enterprise. In the example below, the figures in the column "Local Efficiency Standards" will have been obtained through group study by the students with the help of the teacher. An analysis of records of similar

enterprises completed in previous years by students in the same school will

Example of the Use of Efficiency Factors and Production Goals

PRODUCTION GOALS: Potted Chrysanthemum **ENTERPRISE** 

			<del></del>	
Efficiency Factor	Local Efficienc	y Standards	Student Goal	Student Achieve- ment
Percent marketed	95%	100%	100%	95%
No. of 6" pots per 100 sq. ft. of bench space	75	100*	100	98
No. of blooms/6" pot	18	24	24	22
Percent of pots in 16" to 18" height range including pot marketed	90%	95%	95%	92%

Optimum number

also serve as a guide.

#### Approved Practices - Field Grown B&B Evergreen Shrubs Convexleaf Holly, llex crenata convexa

Pra	ctice_	Ref	erence
1.	Block planning, species selection, site and soil selection, and crop Rotation	Ρ.	35-43, 105-106, 203
2.	Soil preparation	Р.	107-109
3.	Lining out and planting	Р.	109-112, 130
4.	Watering	Ρ.	112
5.	Fertilizing	Р.	114-117
6.	Pest control (weeds, insects, and disease)	Ρ.	121-127
7.	Pruning, supporting, and root pruning	Ρ.	117-121
8.	Digging	Р.	134-138
9.	Grading and market preparation	Ρ.	139-141, 178-187

Reference: NURSERY PRODUCTION, A STUDENT HANDBOOK, PSU 1971



#### Goals Stated in Relation to Efficiency

Field Grown B&B Exergreen Shrubs, Convexleaf Holly, llex crenata convexa

Eff	iciency Factors	Efficiency Average	Standards Superior
١.	Percent marketed	·	
2.	Years of growth to market a 24" to 30" plant	90%	95%
3.	No. of plants per 1,000 sq. ft.	4	3
4.	Dense and symmetrical growth	Good	Excellent
5.	Blemish free	90%	95%
6.	Intense color	Good	Excellent
7.	Percent conforming to AAN Standard	80%	90%



Contest	Efficiency Factors	Min. Efficiency Level for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)
Field Grown B&B Evergreen Shrubs, Con-	a. Percent marketed	90%	95%
vexleaf Holly, llex crenata convexa	b. Years of plants growt to market (24-30") *	h 4	3
	c. Percent of plants rea 24" to 30" market cla harvest		95%
	d. No. of plants per 1,0 sq. ft.	00 125	140
	e. Percent blemish free (free of insect disea and mech. injury)	90% se	95%
	f. Percent conforming to AAN Standard	80%	90%

st Plant growth must include age of liner plus years of growth in the field.



Efficiency Factors	Min. Efficiency Level for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)	Method for Determining Score
a. Percent marketed	90%	95%	.l point for every % over 90
b. Years of plants grow to market (24-30") *	th 4	3	.5 point for every 6 months harvested before 4 years
c. Percent of plants real 24" to 30" market cla		95%	.l point for every % point over 90
d. No. of plants per 1,0 sq. ft.	000 125	140	.035 point for every plant over 125not to exceed 140 plants/1,000 sq. ft.
e. Percent blemish free (free of insect disea and mech, injury)	90% ase	95%	.l point for every % point over 90
f. Percent conforming to AAN Standard	80%	90%	.05 point for every % point over 80

st include age of liner plus years of growth in the field.

3

## Cost Accounting - Nursery Production Field Grown B&B Evergreen Shrubs, Convexleaf Holly, Ilex crenata convexa

- 1. Cost of lining out Stock from  $5\mathfrak{C}$  to  $35\mathfrak{C}$  per plant. Use actual price paid.
- 2. Cost of land per 1,000 sq. ft.
- 3. Cost of labor chargeable to this crop, average \$167 per 1,000 sq. ft.
- 4. Overhead (supplies, equipment) per 1,000 sq. ft.
- 5. Marketing cost average 20% of sum of all other costs.



#### Analysis of Field Grown B&B Evergreen Shrubs, Convexleaf Holly, llex crenata convexa

Name			Date started	Ended
School	4		GenusSpe	cies
County			Total Receipts	X
Sq. ft. use	ed	a	Total Expenses	у
No. sold		b	Labor-Mgmt. Incom $(x - y = z)$	ez
No. per 1,0 (b ÷ a) x 1	000 sq. ft		<pre>Income/I,000 sq. (z ÷ a) x I,000</pre>	f†
Poor		Averag	e	Superior
<u>80%</u>	9/	90% Market	ed .	100%
<u>5</u>	Years of Gro	4 owth Un	til Marketed	3
_85% 3.	% of Plants Reaching	90% 24"-3	O" Grade at Harves	95%
110 4.		125		140
Poor 5.		Good	ical Growth	Excellent
<u>80%</u>		,	ree	95%
<u>Poor</u>				Excellent
	% Conforming	80% a to AA	N Standard	90%
Place	a red "G" on each line h line scale at efficie	scale	at goal set. Plac	ce a red "A"
	and/or conditions which e production and income		Practices and cor contributed to su	
			•	



#### Approved Practices - Field Grown B&B Evergreen Shrubs Hybrid Rhododendron - Catawbiense

PRA	CTICE	RE	FERENCE	
١.	Block planning, species selection, site and soil selection, and crop rotation	۴.	35-43, 105-106, 203	
2.	Soil preparation	Ρ.	107-109	
3.	Lining out and planting	Ρ.	109-112, 130	
4.	Watering	Р.	112	ক্ষতি,
5.	Fertilizing	Ρ.	114-117	
6.	Pest control (weeds, insects, and disease)	Ρ.	121-127	
7.	Pruning, supporting, and root pruning	Ρ.	117-121	
8.	Digging	Ρ.	137-138	
9.	Grading and market preparation	Ρ.	139-141 <b>,</b> 178-181	

Reference: NURSERY PRODUCTION, A STUDENT HANDBOOK, PSU, 1971



#### Goals Stated in Relation to Efficiency

Field Grown B&B Evergreen Shrubs, Hybrid Rhododendron, Catawbiense

Efficiency Sactors		Efficiency Average	Standards Superior
1.	Percent marketed	90%	95%
2,	Years of growth to market an 18" to 24" plant	5	3
3.	No. of plants per 1,000 sq. ft.	125	140
4.	Dense and symmetrical growth	Good	Excellent
5.	Blemish free	90%	95%
6.	Intense color	Good	Excellent
7.	Percent conforming to AAN Standard	Good	Excellent



Contest	Efficiency Factors	Min. Efficiency Level for Determining Score (average)	Max. Efficiency Level for Determining Score (superior
Field Grown B&B Evergreen	a. Percent marketed	90%	95%
Shrubs, Hybrid Rhododendron, Catawbiense	b. Years of plants growth to market 18"-24" *	5	3
	c. Fercent of plants reach 18"-24" market class a harvest		95%
	d. No. of plants per 1,000 sq. ft.	125	140
	e. Dense and symmetrical	Good (90)	Excellent (100)
	f. Percent blemish free (free of disease, insec and mech. injury)	9C% c <b>†,</b>	95 <u>%</u>
	g. Percent conforming to AAN Standard	80%	90%

<sup>\*</sup> Plant growth must include age of liner plus years of growth in the field.



			•
ciency Factors	Min. Efficiency Level for Determining Score (average)	Max. Efficiency Level for Determining Score (superior	Method for Determining Score
ercent marketed	90%	95%	.l point for every % point over 90
ears of plants growth o market 18"-24" *		3	.5 point for every 6 months harvested before 5 years
ercent of plants reachin 8"-24" market class at arvest	ng 90%	95%	.l point for every % point over 90
o. of plants per 1,000 q. ft.	125	140	.035 points for every plant over 125not to exceed 14- plants/1,000 sq. ft.
ense and symmetrical	Good (90)	Excellent (100)	.05 point for every point over 90
ercent blemish free free of disease, insect nd mech. injury)	9C%	95%	.l point for every % point over 90
ercent conforming to AN Standard	80 <i>%</i>	90%	.05 point for évery % point over 80
<b>i</b> .			

nclude age of liner plus years of growth ir the field.



#### Cost Accounting - Nursery Production Field Grown B&B Evergreen Shrubs, Hybrid Rhododendron, Catawbiense

- Cost of lining out stock from 5¢ to 35¢ per plant. Use actual price paid.
- 2. Cost of land per 1,000 sq. ft.
- 3. Cost of labor chargeable to this crop, averages 167 per 1,000 sq. ft.
- 4. Overhead (supplies, equipment) per 1,000 sq. ft.
- 5. Marketing cost average 20% of sum of all other costs.



#### Analysis of Field Grown B&B Evergreen Shrubs, Hybrid Rhododendron, Catawbiense

Name	Date started	Ended
School	Genus	Species
County	Total Receipts_	×
Sq. ft. used	a Total Expenses	У.
No. sold	$\frac{b}{(x - y = z)}$	comez
No. per 1,000 sq. ft (b ÷ a) x 1,000	Income/I,000 so (z ÷ a) x I,000	1. ft
Poor	Average	Superior
_80%	90% % Marketed	100%
6	5 ars of Growth Until Marketed	4
85% 3. % of Plan	90% ts Reaching 18"-24" Grade at Han	95%
4. 110	125 No. Plants per 1,000 sq. ft.	140
<u>Poor</u> 5.	Good Dense and Symetrical Growth	Excellent
<u>80%</u> 6.	90% % Blemish Free	95%
70% 7. % %	80% Conforming to AAN Standard	90%
Place a red "G" on e	each line scale at goal set. Plate at efficiency achieved.	lace a red "A"
Practices and/or condit limited the production a		conditions which superior efficiency



#### Approved Practices - Field Grown B&B Evergreen Shrubs Mugho Pine - Pinus mugo mugo

PRA	PRACTICE	
í.	Block planning, species selection, site and soil selection, and crop rotation	P. 35-43, 105-106, 203
2.	Soil preparation	P. 107-109
3.	Lining out and planting	P. 109-112, 130
4.	Watering	P. 112
5.	Fertilizing	P. 114-117
6.	Pest control (weeds, insects, and disease)	P. 121-127
7.	Pruning, supporting, and root pruning	P. 117-121
8.	Digging	P. 134-138
9.	Market preparation	P. 139-141, 178-181

Reference: NURSERY PRODUCTION, A STUDENT HANDBOOK, PSU 1971

#### Goals Stated in Relation to Efficiency

Field Grown B&B Evergreen Shrubs Mugho Pine, Pinus mugo mugo

		Efficiency	
Eff	iciency Factors	Average	Superior
1.	Percent Marketed	90%	95%
2.	Years of Growth to Market a 12" to 18" plant	6	5
3.	No. of plants per 1,000 sq. ft.	125	140
۷.	Dense and Symmetrical Growth	Good	Excellent
5.	Blemish Free	90%	95%
6.	Intense Color	Good	Excellent
7.	Percent Conforming to AAN Standard	80%	90%



Contest	Efficiency Factors	Min. Efficiency Level for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)
Field Grown B&B Evergreen	a. Percent marketed	90%	95%
Shrubs, Mugho Pine, Pinus mugo mugo	Pinus b. Years of plants growth 6	5 .	
	c. Percent of plants reaching 12"-18" market class at harvest	90%	95%
	d. No. of plants per	125	· 140
	e. Percent blemish free trees (free of insect, disease, and mech. inj	90% ury) .	95%
	f. Color intensity	Good (90)	Excellent (100)
	g. Percent conforming to AAN Standard	80%	90%

<sup>\*</sup> Plant growth must include age of liner plus years of growth in the fie



liciency Factors	Min. Efficiency Level for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)	Method for Determining Score
Percent marketed	90%	95%	.l point for every % point over 90
Years of plants growth to market (12"-18") *	6	5	.5 point for every 6 months harvested before 6 years
Percent of plants reaching 12"-18" market class at harvest	90%	95%	.l point for every % point over 90
No. of plants per	125	140	.035 point for every plant over 125-not to exceed 140 plants/sq. ft.
Percent blemish free trees (free of insect, disease, and mech. inju	90% ry)	95%	.l point for every % point over 90
Color intensity	Good (90)	Excellent (100)	.05 point for every point over 90
Percent conforming to AAN Standard	80%	90%	.05 point for every % point over 80

Plant growth must include age of liner plus years of growth in the field.





#### Cost Accounting - Nursery Production Field Grown B&B Evergreen Shrubs, Mugho Pine, Pinus mugo mugo

- 1. Cost of lining out grafts about  $35\ensuremath{\rlap/c}$  per plant. Use actual price paid.
- 2. Cost of land per 1,000 sq. ft.
- Cost of labor chargeable to this crop, average \$167 per 1,000 sq. ft.
- 4. Overhead (supplies, equipment) per 1,000 sq. ft.
- 5. Marketing cost averages 20% of sum of all other costs.

#### Analysis of Field Grown B&B Evergreen Shrubs Mugho Pine, Pinus mugo mugo

Name	Date started	Ended
School	Genus	Species
County	Total Receipts_	x
Sq. ft. used	<u>a</u> Total Expenses_	у
No. sold	b Labor-Mgmt. Ind	comez
No. sold bare root	Income/1,000 so (z + a) x 1,000	q. ft
No. per 1,000 sq. ft(b + a) x 1,000		
Poor	Average	Superior
_80%	90%	100%
1.	% Marкетед	•
6 2. Years	5½ s of Growth Until Marketed	<u> </u>
	90% Reaching 12"-18" Grade at Harvo	
3. % of Plants P	Reaching 12"-18" Grade at Harv	es⊤
4. No.	. Plants per 1,000 sq. ft.	140
Poor		· Excellent
5.	Symmetrical Branching	2/100110111
80%	90% % Blemish Free	95%
6.	% Blemish Free	
<u>Poor</u> 7.	Good Color Intensity	Excellent
70%	, 80%	90%
	Conforming to AAN Standard	
	ach line scale at goal set. P t efficiency achieved.	lace a red "A"
Practices and/or condition and the production and t		conditions which superior efficiency:
·	207	



#### Approved Practices - Field Grown B&B Evergreen Shrubs American Arborvitae - Thuja occidentalis

PRA	PRACTICE		
١.	Block planning, species, selection, site and soil selection, and crop rotation	P. 35-43, 105-106	
2.	Soil preparation	P. 107-109	
3.	Lining out and planting	P. 109-112,	
4.	Watering	P. 112	
5.	Fertilizing	P. 114-117	
6.	Pest control (weeds, insects, and disease)	P. 121-127	
7.	Pruning, supporting, and root pruning	P. 117-121	
8.	Digging	P. 134-138	
9.	Grading and market preparation	P. 139-141, 178-187	

Reference: NURSERY PRODUCTION, A STUDENT HANDBOOK, PSU 1971

#### Goals Stated In Relationship to Efficiency

Field Grown B&B Evergreen Shrubs, American Arborvitae, Thuja occidentalis

		Efficienc	cy Standards
Efficiency Factors		Average	Superior
١.	% Marketed	90%	95%
2.	Years of growth to market a 36"-48" plant	5	3
3.	No. of plants per 1,000 sq. ft.	125	140
4.	Dense and symmetrical growth	Good	Excellent
5.	Blemish free	90%	95%
6.	Intense color	Good .	Excellent
7.	% Conforming to AAN Standard	80%	90%



Contest	Efficiency Factors	Min. Efficiency Level for Determining Score (average)	Max. Efficiency Level for Determinin Score (superior)
B&B Ever- green Shrubs	a. % Marketed	90	95
American Arborvitae Thuja occidentalis	b. Years of plants growth to market 36"-48" *	. 5	. 3
	c. % of plants reaching 36"-4 market class at harvest	18" 90	95
	d. Number of plants per 1000 sq. ft.	125	140
	e. % Blemish free trees (free of insect, disease, and me injury)		.95
	f. Color intensity	Good (90)	Excellent (100)
	g. % Conforming to AAN Standa	ard 80	90

<sup>\*</sup> Plant growth must include age of liner plus years of growth in the field



l iciency Factors	Min. Efficiency evel for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)	Method for Determining Score
& Marketed	90	95	.l point for every % over 90
Years of plants growth to market 36"-48" *	5	3 .	.5 point for every 6 months harvesting before 6 years
% of plants reaching 36"-48' market class at harvest	' 90 -hri	95	.l point for every % point over 90
Number of plants per 1000 sq. ft.	125	140	.035 point for every plant over 125-not to exceed 140 plants/1000 sq. ft.
% Blemish free trees (free of insect, disease, and meclinjury)	90 n.	95	.I point for every plant over 125-not to exceed 140 plants/1000 sq. ft.
Color intensity	Good (90)	Excellent (100)	.05 point for every point over 90
% Conforming to AAN Standar	d 80	90	.05 point for every % over 80

lant growth must include age of liner plus years of growth in the field.



### Cost Accounting - Nursery Production Field Grown B&B Evergreen Shrubs, American Arborvitae, Thuja occidentalis

- 1. Cost of lining out stock from 5¢ to 35¢ per plant. Use actual price paid.
- 2. Cost of land averages \$98 per 1000 sq. ft.
- 3. Cost of labor chargeable to this crop, averages \$167 per 1000 sq. ft.
- 4. Overhead (supplies, equipment) per 1000 sq. ft.
- 5. Marketing cost average 20% of sum of all other costs.

#### Analysis of Field Grown B&B Evergreen Shrubs American Arborvitae, Thuja occidentalis

4* +3	Date Started	_EnJed
*i xol	GenusSpec	ies
anty	Total Receipts	
;. ft. used	a_Total Expenses	,΄
solu	b Labor-Management Income_ (x - y = z)	
. per 1000 sc	Income/1000 sq. ft. $(z \div a) \times 1000$	
Poor	Average Superi	or
80%	90% 100 % Marketed	ا <mark>ط'</mark> ادا
	5 Years of growth until marketed	<del></del>
85% . %	90% 95 of plants reaching 36-48" grade at harvest	<del>1</del>
110	No. plants per 1000 sq. ft.	)
Poo	Good Excelle Symmetrical branching	ent .
80%	90% 95% % Blemish free	5
70%	80% 90 % Conforming to AAN Standard	0%



lace a red "G" on each line scale at goal set. Place a red "A" on each line scale at efficiency achieved.

which limited the production and income:	contributed to superior efficiency:

#### Approved Practices - Field Grown B&B Evergreen Shrubs Spreading Yew, Taxus cuspidata

PRACTICE			FERENCE
١.	Block planning, species selection, site and soil selection, and crop rotation	Ρ.	35-43, 105-106, 203
2.	Soil preparation	Ρ.	107-109
3.	Lining out and planting	Ρ.,	109-112, 130
4.	Watering	Р.	112
5.	Fertilizing	Ρ.	114-117
6.	Pest control (weeds, insects, and disease)	Ρ.	121-127
7.	Pruning, supporting, and root pruning	Р.	117-121
8.	Digging	Ρ.	134-138
9.	Grading and market preparation	Ρ.	139-141 <b>,</b> 178-187

Reference: NURSERY PRODUCTION, A STUDENT HANDBOOK, PSU 1971

### Goals Stated in Relation to Efficiency

B&B Evergreen Shrubs, Spreading Yew, Taxus cuspidata

		Efficien	cy Standards
Efficiency Factors		Average	Superior
١.	% Marketed	90%	95%
2.	Years of growth to market a 24"-36" sheared plant	5 125	3 140
3.	No. of plants per 1000 sq. ft.	125	140
4.	Dense and symmetrical growth	Good	Excellent
5.	Blemish free	90%	95%
6.	Intense color	Good	Excellent
7.	% Conforming to AAN Standard	80%	90%

ŗ	7	٦
,	١	5
	_	٠.

Contest	Efficiency Factors	Min. Efficiency Level for Determining Score (average)	Max. Efficiency Level for Determining Score (suprioor
B&B Ever- green Shrubs Spreading	a. % Marketed	90%	95%
Yew Taxus cuspidata	<pre>b. Years of plants growth to market (24"-36") *</pre>	5	3
	c. % of plants reaching 24"-3 spread at harvest, sheared	6" 90%	95%
	d. Number of plants per 1000 ft.	sq. 125	I 40
	•		
	<ul><li>e. % Blemish free trees (free insects, disease, and mech injury)</li></ul>		95%
	f. Color intensity	Good (90)	Excellent (100)
		•	
	g. % Conforming to AAN Standa	ard 80%	90%

<sup>\*</sup> Plant growth must include age of liner plus years of growth in the field



L fficiency Factors	Min. Efficiency evel for Determining Score (average)	Max. Efficiency Level for Determining Score (suprioor	Method of Determining Score
. % Marketed	90%	95%	.l point for every 1% point over 90
• Years of plants growth to market (24"-36") *	5 . `.	3	.5 point for every 6 months harvesting before 5 years
. % of plants reaching 24"-36" spread at harvest, sheared	90%	95%	.l point for every % point cver 90
. Number of plants per 1000 so ft.	ı. 125	140	.035 point for every plant over 125-not to excee 140 plants/1000 sq. ft.
. % Blemish free trees (free of insects, disease, and mech. injury)	of 90%	95%	.l point for every % point over 90
. Color intensity	Good (90)	Excellent (100)	.05 point for every point over 90
. % Conforming to AAN Standard	i 80%	90%	.05 point for every % point ever 80

Plant growth must include age of liner plus years of growth in the field.



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#### Cost Accounting - Nursery Production Field Grown B&B Evergreen Shrubs, Spreading Yew, Taxus cuspidata

- 1. Cost of lining out stock from 5¢ to 35¢ per  $\mu iant$  . Use actual price paid.
- 2. Cost of land per 1000 sq. ft.
- 3. Cost of labor chargeable to this crop, about \$167 per 1000 sq. ft.
- 4. Overhead (supplies, equipment) per 1000 sq. ft.
- 5. Marketing cost about 20% of sum of all other costs.

A mound



#### Analysis of Field Grown B&B Evergreen Shrubs Spreading Yew, Taxus cuspidata

. "		Date Started_	Ended	
	<del></del>	Genus	Species	
anty		Total Receipts	5	×
	used	· · · · ·	5	
in. sold_		b Labor-Manageme	ent Income	Z
Ma. per (υ ÷ a) >	1000 sq. ft × 1000	$(x - y = z)$ Income/1000 so $(z \div a) \times 1000$	]. ft	
	Poor	Average	Superior	
1.	80%	90% % Marketed	100%	
2.	7 Y	5 ears of growth until market		
· •	85% % Cf pla	90% nts reaching 24-36" grade a		
4.	110	No. plants per 1000 sq. ft	125	
·• .	Poor	Good Symmetrical branching	Excellent	
<b>U.</b>	80%	90% % Blemish free	95%	•
7.	70%	80% % Conforming to AAN Standar	90%	

Flace a red "G" on each line scale at goal set. Place a red "A" on each line scale at efficiency achieved.

limited the production and income:	contributed to superior efficienc		

#### Approved Practices - Field Grown B&B Evergreen Shrubs Pfitzer Juniper, Juniperus chinensis

PRA	CTICE	RE	FERENCE
i.	Block planning, species selection, site and soil selection, and crop rotation -	Ρ.	35-43, 105-106, 203
2.	Soil preparation	Р.	107-109
3.	Lining out and planting	Р.	109-112, 130
4.	Watering	Р.	112
5.	Fertilizing	Р.	114-117
ε.	Pest Control (weeds, insects, and disease)	Р.	121-127
7.	Pruning, supporting, and root pruning	Р.	117-121
8.	Digging	Р.	134-138
9.	Grading and market preparation	Р.	139-141, 178-187

Reference; NUTSERY PRODUCTION, A STUDENT HANDBOOK, PSU 1971

# Goals Stated in Relation to Efficiency

Field Grown B&B Evergreen Shrubs, Pfitzer Juniper, Juniperus chinensis

Efficiency Factors	Efficiency Average	Standards Superior
i% Marketed	90%	95%
2. Years of growth to market a 24-30" sheared pla	nt 4	3
3. No. of plants per 1000 sq. ft.	125	140
4. Dense and symmetrical growth	Good	Excellent
5. Blemish free	90%	95%
6. Intense color	Good	Excellent
7. % Conforming to AAN Standard	80%	90%



Contest	Efficiency Factors	Min. Efficiency Level for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)
Field Grown B&B Ever-	a. % Marketed	90%	95%
green Shrubs Pfitzer Juniper Juniperus	b. Years of plants growth to market 24"-30" size	4	3
Chinensis	c. % of plants reaching 24"-30", sheared	90%	95%
	d. Number of plants per 100 sq. ft.	00 125	140
	e. % Blemish free trees (free of insects, diseas and mech. injury)	90% se	95%
	f. Color intensity	Good (90)	Excellent (100)
,	g. % Conforming to AAN Standard	80%	90%

<sup>\*</sup> Plant growth must include age of liner plus years of growth in the field.



 ciency Factors	Min. Efficiency Level for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)	Method of Determining Score
Marketed	90%	95%	.l point for every % point over 90
ears of plants growth o market 24"-30" size *	4	3	.5 point for every 6 months harvesting before the 5 years
of plants reaching 4"-30", sheared	90%	95%	.I point for every % point over 90
umber of plants per 100 q. ft.	00 125	140	.035 point for every plant over 125-not to exceed 140 plants 1000 sq. ft.
Blemish free trees free of insects, diseas nd mech. injury)	90% Se	95%	.l point for every % point over 90
Color intensity	Good (90)	Excellent (100)	.05 point for every point over 90
Conforming to AAN tandard	80%	90%	.05 point for every % point over 80

ant growth must include age of liner plus yearsof growth in the field.



Cost Accounting - Nursery Production Field Grown B&B Evergreen Shrubs, Pfitzer Juniper, Juniperus chinensis

- 1. Cost of lining out st ck from 5¢ to 35¢ per plant. Use actual price paid.
- 2. Cost of land per 1000 sq. ft.
- 3. Cost of labor chargeable to this crop, about \$167 per 1000 sq. ft.
- 4. Overhead (supplies, equipment) per 1000 sq. ft.
- 5. Marketing cost about 20% of sum of all other costs.

#### Analysis of Field Grown B&B Evergreen Shrubs Pfitzer Juriper, Juniperus chinensis

`12me			Date started		.naea	
Johool _			Genus	Speci	es	
County _			Total Receipts			×
´į. Ft.	used	a	Total Expenses			у
'w. solo	L 888	<u>b</u>	Labor-Managment	Income _		z
No. per (b ÷ a)	1000 sq. ft		Income/1000 sq. (z ÷ a) x 1000	ft		
	Poor	Av	erage		Superior	
1.	80%		90% rketed	:	100%	
	5 Year		4 h until marketed		3	
3.	85% % of Plants		90% 4"-30" spread at	harvest,	95% sheared	
4.	110 No	o. plants p	125 er 1000 sq. ft.		140	
5.	Poor		ood al <sup>b</sup> ranching	E:	xcellent	
ó.	80%	% Blem	90% nish free		95%	
7.	Poor		Good Intensity	Ę	xcellent	
કુ <b>.</b>	70% % (	Conforming	90% to AAN Standard		90%	
	red "G" on each ale at efficiency			lace a re	d "A" on ea	ch



which limited the production and income:	buted to superior efficiency:
·	



#### Approved Practices - Field Grown B&B and Bare Root Deciduous Shrub Dwarf Burning Bush, Euonymus alatus compacta

PRA	<u>CTICE</u>	REI	FERENCE
١.	Block planning, species selection, site and soil selection, and crop rotation	Р.	35-43, 105-106, 203
2.	Soil preparation	Р.	107-109
3.	Lining out and planting	Ρ.	109-112, 130
4.	Watering	Р.	112
5.	Fertilizing	Р.	114-117
6.	Pest control (weeds, insect, disease)	Ρ.	121-127
7.	Pruning, supporting, and root pruning	Р.	117-121
8.	Digging	Р.	134-138
9.	Grading and market preparation	Р.	139-141, 177-187

Reference; NURSERY PRODUCTION, A.STUDENT HANDBOOK, PSU 1971

#### Goals Stated in Relation to Efficiency Field Grown B&B and Bare Root Deciduous Shrub Dwarf Burning Bush, Euonymus alatus compatca

Eff	iciency Factors	Efficien Average	cy Standards Superior
1.	% Marketed	90%	95%
2.	Years of growth to market a 30"-36" plant	4	3
3.	No. of plants per 1000 sq. ft.	125	140
4.	Dense and symmetrical growth	Good	Excellent
5.	Blemish free	90%	95%
6.	% Conforming to AAN Standard	80%	90%

Contest	Efficiency Factors	Min. Efficiency Level for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)
Field Grown B&B and Bare Root Deciduous Shrub	a. % Marketed	90%	95%
Burning Bush Dwarf Eyonymus alatus compacta	t. Years of plants growth to market a 30"-36" plant *	o 4	3
	c. % of crop reaching 30"-36	5" 90%	95%
	d. Number of plants per 1000 sq. ft.	125	140
	~		. In . 2.
	e. Blemish free (free of insect, disease, and mech. damage)	90%	95%
	f. % Conforming to AAN Standard	80%	90%
		•	

st Plant growth must include age of liner plus the years of growth in the fi



iciency Factors	Min. Efficiency Lead for Determining core (average)	Max. Efficiency Level for Determining Score (superior)	Method for Determining Score
% Marketed	90%	95%	.l point for every % point over 90%
Years of plants growth to market a 30"-36" plant *	o 4	3	.5 point for exery 6 months harvested before 4 years
% of crop reaching 30"-36	5" 90%	95%	.l point for every % point over
Number of plants per 1000 sq. ft.	) 125	I 40	.035 point for every plant/1000 sq. ft. over 125 not to exceed 140 plants/1000 sq. ft.
Blemish free (free of insect, disease, and mech. damage)	90%	95%	.l point for every % point over 90%
% Conforming to AAN Standard	80%	90%	.05 point for every % point over 90%

lant growth must include age of liner plus the years of growth in the field.



#### Cost Accounting - Nursery Production Field Grown B&B and Bare Root Deciduous Shrubs, Dwarf Burning Bush, Euonymus alatus compacta

- 1. Cost of lining out stock from  $5\phi$  to  $35\phi$  per plant. Use actual price paid.
- 2. Cost of land per 1000 sq. ft.
- 3. Cost of labor chargeable to this crop, about \$167 per 1000 sq. ft.
- 4. Overhead (supplies, equipment) per 1000 sq. ft.
- 5. Marketing cost--about 20% of sum of all other costs.

#### Analysis of Field Grown B&B and Bare Root Deciduous Shrubs, Dwarf Burning Bush, Euonymus alta compacta

Name		_ Date Started	Ended	
School		GenusSpecies		
County		_ Total Receipts _		×
Sq. ft.	used	a_ Total Expenses _		у
No. sol	d B&Bt	<u>b</u> Labor-Management	Income	. Z
No. sol	d Bare Root	(x - y = z)		
No. per (a ÷ b)	1000 sq. ft. × 1000	_ Income/1000 sq. (z ÷ a) x 1000	ft	
	Poor A	verage	Superior	
1.	80% % M	90% arketed	100%	
2.	7 Years of growth unti		3 5" size	•
3.	85% % of plants reaching	90% 30-36" grade at ha	95% arvest	
4.	•	125 per 100 sq. ft.	. 140	
5.		Good cal branching	Excellent	
6.	80% "% Ble	90% mish free	95%	
7.	70% % Conforming	80% to AAN Standard	90%	

Place a red "G" on each line scale at goal set. Place a red "A" on each line scale at efficiency achieved.



Practices and/or conditions which limited the production and income:	Practices and conditions which contributed to superior efficiency:

# Approved Practices - Field Grown B&B or Bare Root Deciduous Shrub Forsythia, Forsythia Intermedia spectabilis

PRACTICE		REFERENCE
١.	Block planning, species selection, site and soil selection, and crop rotation	P. 35-43
2.	Soil preparation	P. 107-109
3.	Lining out and planting	P. 109-110
4.	Watering	P.· 112
5.	Fertilizing	P. 114
6.	Pest control (weeds, insects, disease)	P. 121-127
7.	Pruning, supporting, and root pruning	P. 117-121
8.	Digging	P. 134-138
9.	Market preparation	P. 171-185
	·	

Reference: NURSERY PRODUCTION, A STUDENT HANDBOOK, PSU 1971

#### Goals Stated in Relation to Efficiency

Field Grown B&B and Bare Root Deciduous Shrub, Forsythia, Forsythia intermedia spectabilis

iciency Factors	Efficiency Average	Standards Superior
% Marketed	90%	95%
Years of growth to market a 5'-6' plant	5	3
No. of plants per 1000 sq. ft.	125	140
Dense and symmetrical growth	Good	Excellent
% Blemish free	90%	95%
% Conforming to AAN Standard	80%	90%
	<pre>% Marketed Years of growth to market a 5'-6' plant No. of plants per 1000 sq. ft. Dense and symmetrical growth % Blemish free</pre>	% Marketed 90% Years of growth to market a 5'-6' plant No. of plants per 1000 sq. ft. Dense and symmetrical growth Good % Blemish free 90%



Contest .	Efficiency Factors	MinEfficiency Level for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)
Field Grown B&B and Bare Root Deciduous	a. % Marketed	90%	95%
Shrubs Forsythia Forsythia	b. Years of plants growth to to market a 5'-6' plant *		3 .
intermedia spectabilis	c. % of crop reaching a 4'-6 height or better	5' 90%	95%
	d. Number of plants per 1000	) 125	140
	e. % blemish free shrubs	90%	95%
	f. % Conforming to AAN Standard	80%	90%

<sup>\*</sup> Plant growth must include age of liners and years of growth in the field.



iency Factors	MinEfficiency Level for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)	Method for Determining Score
Marketed	90%	95%	.l point for every % point over 90%
ars of plants growth to market a 5'-6' plant *	4	3	.5 points for every 6 months harvesting before the 4 years
of crop reaching a 4'-6 ight or better	90%	95%	.l point for every % point over 90%
umber of plants per 1000	125	140	.035 point for every plant/1000 sq. ft. over 125- not to exceed 150 plants/1000 sq. ft.
blemish free shrubs	90%	95%	.l point for every % point over 90%
Conforming to AAN tandard	80%	90%	.05 point for every point over 80%
i e			

ant growth must include age of liners and years of growth in the field.



# Cost Accounting - Nursery Production Field Grown B&B and Bare Root Deciduous Shrub, Forsythia, Forsythia intermedia spectabilis

- 1. Cost of lining out stock from 5¢ to 35¢ per plant. Use actual price paid.
- 2. Cost of land per 1000 sq. ft.
- 3. Cost of labor chargeable to this crop, about \$167 per 1000 sq. ft.
- 4. Overhead (supplies, equipment) per 1000 sq. ft.
- 5. Marketing cost about 20% of sum of all other costs.

#### Analysis of Field Grown B&B and Bare Root Deciduous Shrub, Forsythia, Forsythia intermedia spectabilis

*!ame	Date S	tartedEnded
School	Genus	Species
		Receipts
Sq. ft. used	a Total	Expensesy
No. sold B&B	b Labor-	Management Incomez
No. sold Bare Root	·	_,
No. per 1000 sq. ft [(b +c) ÷ a] x 1000	Income (z ÷ a	e/1000 sq. ft. a) × 1000
Poor	Average	Superior
80%	90% % Marketed	100%
5 2. Years o	4 f growth until marketed	3 d at 5-6' height
	90% plants reaching 5-6' gi	
110	125 No. plants per 1000	
Poor 5.	Good Symmetrical Bran	Excellent ching
<del>80%</del>	90% % Blemish Fre	95% e
70%	80% % Conforming to AAN S	90% tandard

Place a red "G" on each line scale at goal set. Place a red "A" on each line scale at efficiency achieved.

Practices and/or conditions which limited the production and income:	Practices and conditions which contributed to the superior efficiency:		
- :			



#### Approved Practices - Field Grown B&B and Bare Root Deciduous Shrubs Lilac, Syringa vulgaris

PRA	CTICE	REI	FERENCE
١.	Block planning, species selection, site and soil selection, and crop rotation	Ρ.	35-43, 105-106, 203
2.	Soil preparation	Ρ.	107-109
3.	Lining out and planting	Ρ.	109-112, 130
4.	Watering	Ρ.	112
5.	Fertilizing	Ρ.	114-117
6.	Pest control (weeds, insects, disease)	Ρ.	121-127
7.	Pruning, supporting, and root pruning	Ρ.	117-121
8.	Digging	Ρ.	134-138
9.	Grading and market preparation	Ρ.	139-141, 178-187

Reference: NURSERY PRODUCTION, A STUDENT HANDBOOK, PSU 1971

### Goals Stated in Relation to Efficiency

Field Grown B&B and Bare Root Deciduous Shrub, Syringa vulgaris

iciency Factors	Efficienc Average	sy Standards Superior
% Marketed	90%	95 <b>%</b>
Years of growth to market a 4'-5' plant	5	4
No. of plants per 1000 sq. ft.	125	140
Dense and symmetrical growth	Good	Excellent
% Blemish free	90%	95%
% Conforming to AAN Standard	80%	90%
		# Marketed 90%  Years of growth to market a 4'-5' plant 5  No. of plants per 1000 sq. ft. 125  Dense and symmetrical growth Good  # Blemish free 90%



Contest	Efficiency Factors	Min. Efficiency Level for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)
Field Grown B&B and Bare Root Deciduous	a. % Marketed	90%	95%
Shrubs Lilac Syringa vulgaris	b. Years of plants growth	5	4
Vargarra	c. % of crop reaching a 4'-5 height	5' 90%	95%
·,	d. Number of plants per 1000 sq. ft.	) 125	140
	e. % Blemish free shrubs (free of insects, disease and mech. injury)	90% e,	95%
	f. % Conforming to AAN Standard	80%	90%

<sup>\*</sup> Plant growth must include age of liners plus years of growth in the fie



Min. Efficiency Level for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)	Method for Determining Score
90%	95%	.l point for every % of 90%
5		.5 point for every 6 months harvested before the 5 years
90%	95%	.l point for every % point above 90%
) 125	140	.035 point for every plant/1000 sq. ft. over 125- not to exceed 140 plants/1000 sq. ft.
90%	95%	.l point for every % point above 90%
80%	90%	.05 point for every % point over 80%
	Level for Determining Score (average)  90%  5  125	Level for Determining Score (average)  90%  90%  95%  5  4  5  125  140

Plant growth must include age of liners plus years of growth in the field.



# Cost Accounting - Nursery Production Field Grown B&B and Bare Root Deciduous Shrub, Lilac, Syringa vulgaris

- Cost of lining out stock from 5¢ to 35¢ per plant. Use actual price paid.
- 2. Cost of land per 1000 sq. ft.
- 3. Cost of labor chargeable to this crop, about \$167 per 1000 sq. ft.
- 4. Overhead (supplies, equipment) per 1000 sq. ft.
- 5. Marketing cost about 20% of sum of all other costs.

#### Analysis of Field Grown B&B and Bare Root Deciduous Shrubs Lilac, Syringa vulgaris

Name	Date Started	Ended
School	Genus	Species
County	Total Receipts_	×
Sq. Ft. used	a_Total Expenses	У
No. sold B&B	$\frac{b \text{ Labor-Mgmt. Income }}{(x - y = z)}$	omez
No: sold Bare Root	<u>C</u>	
(b + c ÷ a) x 1000	Income/1000 sq. (z + a) x 1000	ft
Poor	Average	Superior
80%	90% % Marketed	100%
2. Years o	of growth until marketed at 4-5	4 height
85% 3. % of	90% Plants reaching 4-5' grade at 1	95% narvest
110	No. Plants per 1000 sq. ft.	140
Poor 5.	Good Symmetrical branching	Excellent
80%	90% % Blemish free	95%
70%	80% % Conforming to AAN standard	90%
Place a re	ed "G" on each line scale at go	al sot Place a

Place a red "G" on each line scale at goal set. Place a red "A" on each line scale at efficiency achieved.





Practices and/or conditions which limited the production and income:	contributed to superior efficiency:

## Approved Practices - Field Crown B&B and Bare Root Deciduous Shrubs Mockorange, virginalis

PRACTICE		REF	REFERENCE	
1.	Block planning, species selection, site and soil selection, and crop rotation	Ρ.	35-43, 105-106, 203	
2	Soil preparation	Р.	107-109	
3.	Lining out and planting	Р.	109-112, 130	
4.	Watering	Р.	112	
5.	Fertilizing	Р.	114-117	
6.	Pest control (weeds, insect, disease)	Р.	121-127	
7.	Pruning, supporting, and root pruning	Р.	117-121	
8.	Digging	Р.	134-138	
9.	Grading and market preparation	۲.	139-141, 178-187	

Reference: NURSERY PRODUCTION, A STUDENT HANDBOOK, PSU 1971

#### Goals Stated in Relation to Efficiency Field Grown B&B and Bare Root Deciduous Shrubs Mockorange, Philadelphus virginalis

Efficiency Factors		Efficiency Average	Standards Superior
١.	% Marketed	90%	95 <b>%</b>
2.	Years of growth to market a 4'-5' plant	5	4
3.	No. of plants per 1000 sq. ft.	125	140
4.	Dense and symmetrical growth	Good	Excellen+
5.	% Blemish free	90%	95%
6.	% Conforming to AAN Standard	80%	90%

Contest	Efficiency Factors	Min. Efficiency Level for Determining Score (average)	Max. Efficiency Level for Determinin Score (superior)
Field Grown B&B and Bare	a. % Marketed	90%	95%
Root Deciduous Shrubs Mockorange Philadelphus	b. Years of plants growth to market a 4'-5' plant *	5	4
virginalis	c. % of crop reaching a 4'-5 height	90%	95%
	d. Number of plants per 1000 sq. ft.	125	140
	e. % Blemish free shrubs (free of insect, disease and mech. injury)	90%	95%
	f. % Conforming to AAN Standard	80%	90%

<sup>\*</sup> Plant growth must include age of liners plus years of growth in the fi



Efficiency Factors	Min. Efficiency Level for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)	Method for Determining Score
a. % Marketed	90%	95%	.l point for every % point over 90%
o. Years of plants growth t market a 4'-5' plant *	⁻o 5	4	.5 point for every 6 month harvested before the 5 years
c. % of crop reaching a 4'- height	-5' 90%	95%	.l point for every % point above 90%
d. Number of plants per 100 sq. ft.	00 125	140	.035 point for every plants/1000 sq. ft. over !25-not to exceed 140 plants/1000 sq. ft.
e. % Blemish free shrubs (free of insect, diseas and mech. injury)	90% e	95%	.l point for every % point above 90%
f. % Conforming to AAN Standard	80%	90%	.05 point for every % point above 80%

<sup>\*</sup> Plant growth must include age of liners plus years of growth in the field.



25%

#### Cost Accounting - Nursery Production Field Grown B&B and Bare Root Deciduous Shrub, Mockorange, Philadelphus, virginalis

- 1. Cost of lining out stock from  $5\phi$  to  $35\phi$  per plant. Use actual price paid.
- 2. Cost of land per 1000 sq. ft.
- 3. Cost of labor chargeable to this crop, about \$167 per 1000 sq. ft.
- 4. Overhead (supplies, equipment) per 1000 sq. ft.
- 5. Marketing cost about 20% of sum of all other costs.

### Analysis of Field Grown B&B and Bare Root Deciduous Shrubs Mockorange, Philadelphus virginalis

Name	Date Started	Ended	
School	Genus	Species	
County			
Sq. ft. used	a Total Expenses		У
No. sold B&B	b Labor-Managemen	t Income	Z
No. sold Bare Root	(x - y = z)		
No. per 1000 sq. ft. [(b + c) ÷ a] x 1000	Income/1000 sq. (z ÷ a) x 1000	f†	
Poor	Average	Superior	
80%	90% Marketed	100%	
6 2. Years of growth un	5 til marketed at 4-5'	4 height	
85% 3. % of plants reach	90% ing 4-5' grade at ha	95% rvest	•
4. No. plant	125 s per 1000 sq. ft.	140	
Poor 5. Symmet	Good rical Branching	Excellent	
80% 6. % B	90% Hemish Free	95%	
70%	80%	90%	

Place a red "G" on each line scale at goal set. Place a red "A" on each line scale at efficiency achieved.



Practices and/or conditions which limited the production and income:	contributed to superior efficiency:		

Approved Practices - Field Grown B&B and Bare Root Deciduous Shrubs Viburnum, Viburnum sieboldi

PRA	CTICE	REF	RERENCE
١.	Block planning, species selection, site and soil selection, and crop rotation	Ρ.	35-43, 105-106, 203
2.	Soil preparation	Ρ.	107-109
3 <b>.</b>	Lining out and planting	Ρ.	109-112, 130
4.	Watering	۲.	112
5.	Fertilizing	Ρ.	114-117
6.	Pest control (weeds, insect, disease)	Ρ.	121-127
7.	Pruning, supporting, and root pruning	Ρ.	117-121
8.	Digging	Ρ.	134-138
9.	Grading and market preparation	Ρ.	139-141, 178-187

Reference: NURSERY PRODUCTION, A STUDENT HANDBOOK, PSU 1971

#### Goals Stated in Relation to Efficiency

Field Grown B&B and Bare Root Deciduous Shrub, Viburnum, Viburnum sieboldi

Efficiency Factors		Efficienc Average	Superior
١.	% Marketed	90%	95%
2.	Years of growth to market a 3'-4' plant	5	4
3.	No. of plants per 1000 sq. ft.	125	140
4.	Dense and symmetrical growth	Good	Excellent
5.	% Blemish free	90%	95%
6.	% Conforming to AAN Standard	80%	90%
			•

Contest	Efficiency Factor	Min. Efficiency Level for Determining Score (average)	Max. Efficiency Level for Determini Score (superior)
Field Grown B&B and Bare	a. % Marketed	90%	95%
Root Deciduous Shrub Viburnum, Viburnum	b. Years of plants growth to market a 3'-4' plant *	5	4
sieboldi	c. % Crop reaching a 3'-4' height	90%	95%
	d. Number of plants per 1000 sq. ft.	125	140
	<ul><li>e. % Blemish free shrubs (free of insect, disease and mech. injury)</li></ul>	90%	95%
	f. % Conforming to AAN Standard	80%	90%

<sup>\*</sup> Plant growth must include age of the liner plus years of growth in the



iciency Factor	Min. Efficiency Level for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)	Method of Determining Score
% Marketed	90%	95%	.l point for every % point over 90%
Years of plants growth to market a 3'-4' plant *	5	4	.52 point for every 6 months harvested before 5 years
% Crop reaching a 3'-4' height	90%	95%	.12 points for every % point above 90%
Number of plants per 1000 sq. ft.	125	I 40	.015 point for every plant/1000 sq. ft. over 125-not to exceed 140 plants/1000 sq. ft.
% Blemish free shrubs (free of insect, disease and mech. injury)	90%	95%	.l point for every % point over 90%
% Conforming to AAN Standard	80%	90%	.05 point for every % point over 80%

lant growth must include age of the liner plus years of growth in the field.

## Cost Accounting - Nursery Production Field Grown B&B and Bare Root Deciduous Shrub, Viburnum, Viburnum sieboldi

- 1. Cost of lining out stock from  $5\mathfrak{c}$  to  $35\mathfrak{c}$  per plant. Use actual price paid.
- 2. Cost of land per 1000 sq. ft.
- 3. Cost of labor chargeable to this crop, about \$167 per 1000 sq. ft.
- 4. Overhead (supplies, equipment) per 1000 sq. ft.
- 5. Marketing cost about 20% of sum of all other costs.

#### Analysis of Field Grown B&B and Bare Root Deciduous Shrubs Viburnum, Viburnum sieboldi

Dame	Date Started Ended
Cahoo I	GenusSpecies
County	Total Receipts×
Sq. ft. used	a Total Expenses y
No. sold Bare Root	(x - y = z)
	Income/1000 sq. ft(z ÷ a) x 1000
Poor	Average Superior
80%	90% 100% Marketed
6 2. Years of growth un-	5 til marketed at 3-4' height
85% Percent of plants rea	90% 95% aching 3-4' grade at harvest
110 4. No. plants	125 s per 1000 sq. ft.
Poor Symmet	Good Excellent rical Branching
80%	90% 95% lemish free
70% % Confirmi	80% 90% 90% 90% 90%

Place a red "G" on each line scale at goal set. Place a red "A" on each line scale at efficiency achieved.

Practices and conditions which limited the production and income:	contributed to superior efficiency:		

Prepared by The Department of Agricultural Education, The Pennsylvania State University, in cooperation with the Pennsylvania Department of Education and Pennsylvania Vocational Agriculture Teachers. 1974

# Supervised Occupational Experience Record Forms for Ornamental Horticulture (Revised) 1974

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MIDSERY DRODUCTION - CO.T		
NURSERY PRODUCTION - CONTAINER GROWN PLANTS	Ε	139-186
Red Leaf Japanese Maple		142-146
Chinese Wisteria		_
	Ε	147-152
Weigela	Ε	153-158
Dwarf Pfitzer Juniper		159-163
Spreading Coto		
opieading coloneaster	Ε	164-169
Deciduous and Evergreen Groundcovers	F	170-175
Deciduous and Evergreen Vines		
Horbacous Dame : 1 51		176-181
Herbaceous Perennial Flowers	Ε	182-188

Department of Agricultural Education
The Pennsylvania State University
in cooperation with
Bureau of Vocational Education
Pennsylvania Department of Education



#### Using The Forms

The five record sheets included in this unit are intended to be used with any production, occupational or work experience record book for high school vocational agriculture programs.

Approved Practices gives specific references to production or service practices that are generally accepted in industry as giving superior results if appropriately applied. A particular business firm might use variations of some of these practices because of unusual local conditions. Students carrying out production projects should find these references especially helpful. Students in agricultural production or services work experience will find them useful guides to what will be expected of them on the job.

Goals are stated in relation to efficiency. They are drawn up on the basis of comparisons of superior achievement with average achievement. The goals given are considered realistic in terms of production enterprises or work experience in production or services occupations. Successful businesses rank somewhere between "average" and "superior" in their goals.

The Efficiency Factor form provides a means for giving a numerical score on goal achievement. It is equally applicable to production enterprises, production occupations or service occupations. The scores are used as one base for comparisons in judging of record books in regional and state record book contests.

Cost Accounting record forms serve as a guide for calculating the costs and profit in a production enterprise or a production experience.

These figures, together with production figures, are used in the analysis of the enterprise.



The <u>Employment Achievement</u> form is used in place of the <u>Cost Account-</u>
<u>Ing</u> form when the experiences involve employment in a service occupation
rather than production occupation.

The <u>Analysis</u> form should be marked at the beginning of the experience program with a "G" to indicate the goal that a student has set for himself. The same scales are marked with an "A" to indicate actual achievement at the end of the experience program. The analysis sheet provides for an evaluation of the approved practices used and their relationship to production or service and income.

Example of the Use of Efficiency Factors and Production Goals

The <u>Pennsylvania Agricultural Production Program Record Book</u> provides space for the student to list appropriate efficiency factors for each productive enterprise. In the example below, the figures in the column "Local Efficiency Standards" will have been obtained through group study by the students with the help of the teacher. An analysis of records of similar enterprises completed in previous years by students in the same school will also serve as a guide.

PRODUCTION GOALS:	Potted Chr	ysanthemum		ENTERPRISE
Efficiency Factor	Local Efficie Average	ncy Standards Superior	Student Goal	Student Achievement
Percent marketed	95%	100%	100%	97%
Number of 6" pots per 100 sq. ft. of bench space	75	100*	100	98
Number of blooms/6" pot	18	24	24	22
Percent of pots in 16" to 18" height range including pot marketed	90%	95%	95%	92%

<sup>\*</sup> Optimum number





#### Approved Practices - Container Grown Plants Red Leaf Japanese Maple, Acer palmatum atropurpureum

PRA	CTICE CONTRACTOR CONTR	RE	FERENCE
١.	Crop Planning, Rotation Schedule	Ρ.	144-150, 164-169
2.	Container Selection	Р.	145-147
3.	Soil Preparation	Ρ.	150-153
4.	Planting	Ρ.	153-154
5.	Staking	Ρ.	117-120
6.	Watering	Ρ.	154-158
7.	Pruning	Ρ.	160-161
8.	Fertilizing	Ρ.	158-160
9.	Pest Control	Ρ.	161-162
10.	Environmental Control	Ρ.	<b>4</b> 7
11.	Winter Protection	Ρ.	162-164
12.	Grading and Market Preparation	Ρ.	164, 177-178, 184-187

Reference: NURSERY PRODUCTION, A STUDENT HANDBOOK, PSU 1971

#### Goals Stated in Relation to Efficiency Nursery Production, Container Grown, Red Leaf Japanese Maple, Acer palmatum atropurpureum

		Efficienc	y Standards
Eff	iciency Factors	Average	Superior
1.	% Marketed	90%	95%
2.	Years of plant growth to market an 18"-24" plant	4	3
3.	No. of plants/1000 sq. ft.	250	275
4.	Symmetrical branching	Good	Excellent
5.	Blemish free trees	90%	95%
6.	% conforming to AAN Standard	80%	90%



		Min. Efficiency Level for Determining	Max. Efficiency Level for Determining
Contest	Efficiency Factors	Score (average)	Score (superior)
Deciduous Plants 2 gal. con-	a. % Marketed	90%	95%
tainers Red Leaf Japanese Maple	<ul><li>b. Years of plant growth t market a 18-24" plant (including container height)*</li></ul>	o 4 yrs.	3 yrs.
Acer palmatum atropurpureum	<pre>c. % of crop reaching 18-24" height including container</pre>	90%	95%
	d. Container plants per 1000 sq. ft.	250	275
	e. % Unblemished (free of insects disease and mech. injury)	90%	95%
	f. % conforming to AAN Standard	80%	90%

<sup>\*</sup> Plant growth must include age of liner plus years of growth in the cont



		•	
ficiency Factors	Min. Efficiency Level for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)	Method of Determining Score
% Marketed	90%	95%	.! point for every % point over 90
Years of plant growth to market a 18-24" plant (including container height)*	o 4 yrs.	3 yrs.	.5 point for every year of harvest under 3 yrs.
% of crop reaching 18-24" height including container	90%	95%	.I point for every % point over 90
Container plants per 1000 sq. ft.	250	275	.02 point/plant over 250 plants- not to exceed 275 plants/1000 sq. ft
% Unblemished (free of insects disease and mech. injury)	90%	95%	.! point for every % point over 90
% conforming to AAN Standard	80%	90%	.05 point for ever 1% over 80%
4.			

Plant growth must include age of liner plus years of growth in the container



#### Cost Accounting - Nursery Production Container Grown Plants, Red Japanese Maple Acer palmatum atropurpureum

- 1. Cost of lining out stock from 5¢ to 35¢ per plant. Use actual price paid.
- 2. Cost of container.
- 3. Cost of growing medium, about \$14 per cubic yard.
- 4. Cost of land per 1000 sq. ft.
- 5. Cost of labor chargeable to this crop.
- 6. Overhead (supplies, equipment) per 1000 sq. ft.
- 7. Marketing cost about 20% of sum of all other costs.

#### Analysis of Container Grown Plants Red Japanese Maple Acer palmatum atropurpureum

Name	Date Started_	Ended
School	Genus	Species
County	Total Receipts	sx
Sq. ft. used	<u>a</u> Total Expense:	s <u>y</u>
No. sold	$\frac{b}{(x - y = z)}$	ncomez
No. per 1,000 sq. ft (b ÷ a) × 1000	Income/I,000 (z - a) x I,0	sq. ft
Poor	Average	Superior
80%	90% % Marketed	100%
5 yrs. 2. Years of	4 yrs. growth until marketed at 18"-24"	3 yrs. height
85% 3. % of	90% plants reaching 18"-24" grade at	95% harvest
	No. plants per 1,000 sq. ft.	275
	Good Symmetrical branching	Excellent
	90% % Blemish free	
70% 7.	80% % Conforming to AAN Standard	90%
Place a red "G"	on each line scale at goal set. ale at efficiency achieved.	Place a red "A"
Practices and condi limited reproductio		d conditions which to superior efficiency

#### Approved Practices - Container Grown Plants Chinese Wisteria, Wisteria sinensis

PRA	CTICE	REF	ERENCE
١.	Crop Planning, Rotation Schedule	Р.	144-150, 164-169
2.	Container Selection	Ρ.	145-147
3.	Soil Preparation	Ρ.	150-153
4.	Planting	Ρ.	153-154
5.	Staking	Ρ.	117-120
6.	Watering	Ρ.	154-158
7.	Pruning	Ρ.	160-161
٤.	Fertilizing	Ρ.	158-160
9.	Pest Control	Ρ.	161-162
10.	Environmental Control	Ρ.	47
11.	Winter Protection	Ρ.	162-164
12.	Grading and Market Preparation	Ρ.	164, 177-178, 184-187

Reference: NURSERY PRODUCTION, A STUDENT HANDBOOK, PSU 1971



#### Goals Stated in Relation to Efficiency Nursery Production, Container Grown, Chinese Wisteria, Wisteria sinensis

		Efficiency	/ Standards
Eft	iciency Factors	Average	Superior
١.	% Marketed	90%	95%
2.	Years of plant growth to market an 18"-24" plant	3	2
	No. of plants/1000 sq. ft.	250	275
4.	Symmetrical branching	Good	Excellent
5.	Blemish free plant	90%	95%
6.	% Conforming to AAN Standard	80%	90%

Contest	Efficiency Factors	Min. Efficiency Level for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)
Deciduous Plants 2 gal.	a. % Marketed	90%	95%
containers Chinese Wisteria Wisteria	b. Years of plant growth to market at 18"-24" *	3 yrs.	2 yrs.
sinensis	c. % of crop reaching 18'24" height at market time	90	95
	d. Container plants per 1000 sq. ft.	250	275
	e. % Unblemished (free of insect, disease and mechanical injury)	90%	95%
	f. % conforming to AAN Standard	80%	90%

<sup>\*</sup> Plant growth must include age of liner plus years of growth in the conta



	•		
ficiency Factors	Min. Efficiency Level for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)	Method of Determining Score
% Marketed	90%	95%	.l point for every % point over 90
Years of plant growth to market at 18"-24" *	3 yrs.	2 yrs.	.5 point for every year of harvest under 2 yrs.
% of crop reaching 18'24" height at market time	90	95	.l point for every % point over 90
Container plants per 1000 sq. ft.	250	275	.02 point/plant over 250 plants- not to exceed 275 plants/1000 sq. ft.
% Unblemished (free of insect, disease and mechanical injury)	90%	95% ·	.l point for every % point over 90
% conforming to AAN Standard	80%	90%	.05 point for every 1% over 80%

Plant growth must include age of liner plus years of growth in the container.





#### Cost Accounting - Nursery Production Container Grown Plants, Chinese Wisteria, Wisteria sinensis

- 1. Cost of lining out stock from  $5\mathfrak{c}$  to  $35\mathfrak{c}$  per plant. Use actual price paid.
- 2. Cost of container.
- 3. Cost of growing medium, about \$14 per cubic yard.
- 4. Cost of land per 1000 sq. ft.
- 5. Cost of labor chargeable to this crop.
- 6. Overhead (supplies, equipment) per 1000 sq. ft.
- 7. Marketing cost about 20% of sum of all other costs.

#### Analysis of Container Grown Plants Chinese Wisteria, Wisteria sinensis

Name		Date Started	iEnded	
School_		Genus	Species	
		Total Receip		
Sq. ft.	used	a Total Expens	ses	у
No. sol	d	b Labor-Mgnt.	Income	Z
No. per (b ÷ a)	1000 sq. ftx 1000	(x - y = z)   Income/1000 (z ÷ a) x [(	sq. ft	
	Poor	Average	Superior	
1.	80%	90% % Marketed	100%	
2.		3 wth Until Marketed at		
3.	85% % of Plants	90% Reaching 18-24" Grade		
4.		250 . Plants per 1000 sq.		
5.	Poor	Good Symmetrical Branching	Excellent	
6.	70%	80% % Blemish Free	90%	
7.	70% % (	80% Conforming to AAN Standa		

Place a red "G" on each line scale at goal set. Place a red "A" on each line scale at efficiency achieved.

limited production and income:	Practices and conditions which contributed to superior efficiency:
·	:



#### Approved Practices - Container Grown Plants Weigela, Weigela florida

PRA	CTICE	<u>REFERENCE</u> `
١.	Crop Planning, Rotation Schedule	P. 144-150, 164-169
2.	Container Selection	P. 145-147
3.	Soil Preparation	P. 150-153
4.	Planting	P. 153-154
5.	Staking	P. 117-120
6.	Watering	P. 1 <b>54-</b> 158
7.	Pruning	P. 160-161
٤.	Fertilizing	P. 158-160
9.	Pest Control	P. 161-162
10.	Environmental Control	P. <b>4</b> 7
11.	Winter Protection	P. 162-164
12.	Grading and Market Preparation	P. 164, 177-178, 184-187

Reference: NURSERY PRODUCTION, A STUDENT HANDBOOK, PSU 1971

#### Goals Stated in Relation to Efficiency Nursery Production, Container Grown, Weigela, Weigela florida

			cy Standards
Efficiency Factors		Average	Superior
1.	% Marketed	90%	95%
2.	Years of plant growth to marketing an 18"-24" plant	3	. 2
3.	No. of plants/1000 sq. ft.	250	275
4.	Symmetrical branching	Good	- Excellent
5.	Blemish free shrubs	90%	95%
6.	% Conforming to AAN Standard	80%	90%



Contest	Efficiency Factors	Min. Efficiency Level for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)
Deciduous Plants 2 gal. containers	a. % Marketed	90%	95%
Weigela Weigela florida	<ul> <li>Years of plant growth to market 18"-24" including container height *</li> </ul>	3 yrs.	2 yrs.
	<pre>c. % of crop reaching     18"-24" height at     market time</pre>	90	95
	d. Container plants per	250	275
, <del>, , , , , , , , , , , , , , , , , , </del>			
	<ul><li>e. % Unblemished (free of insect, disease, and mech. injury)</li></ul>	90	95 °
	f. % Conforming to AAN Standard	80%	90%

<sup>\*</sup> Plant growth must include age of liner plus years of growth in the contain



lency Factors	Min. Efficiency Level for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)	Method of Determining Score
Marketed	9C%	95%	.l point for every % point over 90
ars of plant growth market 18"-24" cluding container ight *	3 yrs.	2 yrs.	.5 points for every month of harvest under 2 yrs.
of crop reaching -24" height at rket time	90	95	.l point for every % point over 90
ntainer plants per 00 sq. ft.	250	275	.02 points/plant over 250 plants- not to exceed 275 plants/1000 sq. ft.
Unblemished ree of insect, sease, and mech. jury)	90	95	.l point for every % point over 90
Conforming to N Standard	80%	90%	.05 point for every 1% over 80%

nt growth must include age of liner plus years of growth in the container



#### Cost Accounting - Nursery Production Container Grown Plants, Weigela, Weigela florida

- 1. Cost of lining out stock from  $5\mathfrak{c}$  to  $35\mathfrak{c}$  per plant. Use actual price paid.
- 2. Cost or containers.
- 3. Cost of growing medium about \$14 per cubic yard.
- 4. Cost of land per 1000 sq. ft.
- 5. Cost of labor chargeable to this crop.
- 6. Overhead (supplies, equipment) per 1000 sq. ft.
- 7. Marketing cost about 20% of sum of all other costs.



#### Container Grown Plants Analysis of Weigela, Weigela florida

Name	Date Started	Ended	
School	Genus	Species	
County	Total Receipts		×
Sq. ft. used			
No. sold	<u>b</u> Labor-Mgmt. In	come	Z
No. per 1000 sq. ft(b : a) x 1000	(x - y = z)   Income/1000 sq (z ÷ a) x 1,00	. ft	
Poor	Average	Superior	
80%	90% % Marketed	100%	
4 2. Years of Gro	ow†h Until Marketed at 18-	_	
	90% s Reading 18-24" Grade at	-	
225 4. No	250 o. Plants per 1000 sq. ft.	275	
Poor 5.	Good Symmetrical Branching	Excellent	
80%	90% % Blemish Free	95%	
70%	80% Conforming to AAN Standard	90%	

Place a red "G" on each line scale at goal set. Place a red "A" on each line scale at efficiency achieved.

limited the production and income:	contributed to superior efficiency:

### Approved Practices - Container Grown Dwarf Pfitzer Juniper, Juniperus chinensis pfitzeriana compacta

PRA	CTICE	REFERENCE
١.	Crop Planning, Rotation Schedule	P. 144-150, 164-169
2.	Container Selection	P. 145-147
3.	Soil Preparation	P. 150-153
4.	Planting	P. 153-154
5.	Staking	P. 117-120
6.	Watering	P. 154-158
7.	Pruning	P. 160-161
8.	Fertilizing	P. 158-169
9.	Pest Control	P. 161-162
10.	Environmental Control	P. <b>4</b> 7
11.	Winter Protection	P. 162-164
12.	Grading and Market Preparation	P. 164, 177-178, 184-188

Reference: NURSERY PRODUCTION, A STUDENT HANDBOOK, PSU 1971

Goals Stated in Relation to Efficiency Nursery Production, Container Grown Dwarf Pfitzer Juniper, Juniperus chinensis pfitzeriana compacta

Eff	iciency Factors	<u>Efficienc</u> Average	y Standards Superior
1.	% Marketed	90%	95%
2.	Years of plant growth to market an 18"-24" plant	3	2
3.	No. of plants/1000 sq. ft.	250	275
4.	Symmetrical branching	Good	Excellent
5.	Blemish free shrubs	90%	95%
6.	% Conforming to AAN Standard	80%	90%

#### Cost Accounting - Nursery Production Container Grown Plants, Dwarf Pfitzer Juniper, Juniperus chinensis pfitzeriana compacta

- 1. Cost of lining out stock from  $5^{\,c}$  to  $35^{\,c}$  per plant. Use actual price paid.
- 2. Cost of containers.
- 3. Cost of growing medium about \$14 per cubic yard.
- 4. Cost of land per 1000 sq. ft.
- 5. Cost of labor chargeable to this crop.
- 6. Overhead (supplies, equipment) per 1000 sq. ft.
- 7. Marketing cost about 20% of sum of all other costs.



#### Container Grown Plants Analysis of Dwarf Pfitzer Juniper, Juniperus chinensis pfitzeriana compacta

Name		Date Starte	dEnded	
School		Genus	Species	
County		Total Recei	pts	X
Sq. ft. us	ed	a Total Exper	ses	у
No. sold		$\begin{array}{ccc} & & & & \\ & & & \\ & &$	Income	<u>z</u>
No. per 10 (b ÷ a) x	00 sq. ft 1000	(x - y - 2)   Income/1000   (z ÷ a) ×	sq. ft	
	Poor	Average	Superior	
1.	80%	90% % Marketed	100%	
2.	4 yrs. Years of	3 yrs. Growth Until Marketed at	2 yrs. 18-24" spread	
3.	85% % of Plants	90% s Reaching 18-24" Spread (	95% Grade at Harvest	
4.	225	250 No. Plants per 1000 sq.	275 ft.	
5.	Poor	Good Symmetrical Branchin	Excellent	
6.	80%	90% % Blemish Free	95%	
7.	70%	80% % Conforming to AAN Stan		

Place a red "G" on each line scale at goal set. Place a red "A" on each line scale at efficiency achieved.

limited the production and income:	contributed to superior efficience		
	<del></del>		



#### Approved Practices - Container Grown Plants Spreading Cotoneaster, Cotoneaster divaricata

<u>Pra</u>	ctice		Reference
١.	Crop Planning, Rotation Schedule	Ρ.	144-150, 164-169
2.	Container Selection	Ρ.	145-147
3.	Soil Preparation	Ρ.	150-153
4.	Planting	Ρ.	153-154
5.	Staking	Ρ.	117-120
6.	Watering	Ρ.	154-158
7.	Pruning	P.	160-161
8.	Fertilizing	Ρ.	158-160
9.	Pest Control	Ρ.	161-162
10.	Environmental Control	Ρ.	47
11.	Winter Protection	Ρ.	162-164
12.	Grading and Market Preparation	Ρ.	164, 177-178, 184-188

Reference: NURSERY PRODUCTION, A STUDENT HANDBOOK, PSU, 1971

# Goals Stated in Relation to Efficiency Nursery Production, Container Grown Spreading Cotoneaster, Cotoneaster divaricata

	1000	Efficiency	Standards
Eff	iciency Factors	Average	Superior
			•
1.	% Marketed	90%	95%
2.	Years of plant growth to market a plant with an 18" to 24" spread	3	2 .
3.	No. of plants/1000 sq. ft.	250	275
4.	Symmetrical branching	Good	Excellent
5.	Blemish free shrubs	90%	95%
6.	% Conforming to AAN Standard	80%	90%

Contest	Eff	iciency	Level f	Efficiency or Determining re (average)	Max. Efficiend Level for Detern Score (superio	mining .
Deciduous Plants 2 gal. contain	a.	% Marketed		90%	95%	. I
Spreading Cotoneaster, Cotoneaster	reading b. Yea toneaster, man	Years of plant grow market 18-24" sprea		3 yrs.	2 yrs.	.5 hai
divaricata	c.	% of crop reaching spread at market ti		90%	95%	.1
	d.	Container plants pe 1000 sq. ft.	er	250	275	.02 pla pla
	е.	<pre>% Unblemished (free insects, disease ar mechanical injury)</pre>		90%	95%	.1
	f.	% Conforming to AAN Standard	١	80%	90%	• 0! • 80;

<sup>\*</sup> Plant growth must include age of liner plus years of growth in the co



fi	L ciency	Min. Efficiency evel for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)	Method of Determining Score
	% Marketed	90%	95%	.l point for every % point over 90
	Years of plant growt market 18-24" spread		2 yrs.	.5 point for every year of harvest under 2 years
	% of crop reaching l spread at market tim		95%	.l point for every % point over 90%
	Container plants per 1000 sq. ft.	250	275	.02 point/plant over 250 plants - not to exceed 275 plants/1000 sq. ft.
	% Unblemished (free insects, disease and mechanical injury)	· · · · · · · · · · · · · · · · · · ·	95%	.l point for every % point over 90% .
	% Conforming to AAN Standard	80%	90%	.05 point for every 1% over 80%

 $P_{\epsilon}$  and growth must include age of liner plus years of growth in the container.

#### Cost Accounting - Nursery Production Container Grown Plants, Spreading Cotoneaster, Cotoneaster divaricata

- 1. Cost of lining out stock from  $5\mathfrak{c}$  to  $35\mathfrak{c}$  per plant. Use actual price paid.
- 2. Cost of containers.
- 3. Cost of growing medium about \$14 per cubic yard.
- 4. Cost of land per 1000 sq. ft.
- 5. Cost of labor chargeable to this crop.
- 6. Overhead (supplies, equipment) per 1000 sq. ft.
- 7. Marketing cost about 20% of sum of all other costs.

 $\mathcal{L}_{\mathbf{a}}$  .  $^{\prime}$ 



#### Analysis of Container Grown Plants Spreading Cotoneaster, Cotoneaster divaricata

Name		Date Started_	Ended	
School_		Genus	Species	
		Total Receipts		x
	used			
No. sold		<u>b</u> Labor-Mgmt. Ir	ocome	Z
No. per (b ÷ a)	1000 sq. ft x 1000	$(x - y = z)$ $  \text{Income/I} (000 so)$ $(z \div a) \times 1,00$	ı. ft	
	Poor	Average	Superior	
1.	80%	90% % Marketed	100%	
2.	4 yrs. Years of	3 yrs. Growth Until Marketed at 18-	2 yrs. -24" Spread	
3.	85% % of Plants	90% s Reaching 18-24" Spread Grad	95% de at Harvest	
4.	225	250 No. Plants per 1000 sq. ft	275	
5.	Poor	Good Symmetrical Branching	Excellent	
6.	80%	90% % Blemish Free	95%	
7.	70%	80% % Conforming to AAN Standar	90% d	

Place a red "G" on each line scale at goal set. Place a red "A" on each line scale at efficiency achieved.

Practices and conditions which limited the production and income:	Practices and conditions which contributed to superior efficiency		

#### Approved Practices - Container Grown Plants Deciduous and Evergreen Ground Covers in 6" Cans Carpet Bugle, Rockspray Cotoneaster, English Ivy, Creeping Juniper, Japanese Spurge

Pra	<u>ctice</u>	Reference	
١.	Crop Planning, Rotation Schedule	Ρ.	144-150, 169
<sup>1</sup> 2.	Container Selection	Р.	145-147
3.	Soil Preparation	Р.	150-153
4.	Planting	Р.	153-154
5.	Staking	Р.	117-120
6.	Watering	Ρ.	154-158
7.	Pruning	Р.	160-161
8.	Fertilizing	Р.	158-160
9.	Pest Control	Ρ.	161-162
10.	Environmental Control	Р.	47
11.	Winter Protection	Ρ.	162-164
12.	Grading and Market Preparation	Ρ.	164, 177-178, 184-188

Reference: NURSERY PRODUCTION, A STUDENT HANDBOOK, PSU, 1971

#### Goals Stated in Relation to Efficiency Container Grown Deciduous and Evergreen Ground Covers in 6" Cans

	*		Efficiend	cy Standards
Eff	iciency Factors		Average	Superior
١.	% Marketed		90%	95%
2.	Years of plant growth to market a .12-15" plant		I	1
3.	No. of plants/1000 sq. ft.		2750	3000
4.	Symmetrical Form		Good	Excellent
5.	Blemish Free Plants		90%	95%
6.	% Conforming to AAN Standard	war.	80%	90%

					· · · · · · · · · · · · · · · · · · ·	
Contest	Eff	iciency Factors	Level f	Efficiency or Determining e (average)	Max. Efficiency Level for Determining Score (superior)	
Container Grown	а.	% Marketed		90%	95%	•
Deciduous and Evergreen Ground Cover Plants in	b.	Years of plant grow market at  2- 5"	vth to	2 yrs.	l yr.	•
6" Cans	c.	% of crop reaching height at market t		90%	95%	•
	d.	Container plants po 1000 sq. ft.	er	2750	3000	• р
	e.	<pre>% Unblemished (free insect, disease, a mechanical injury)</pre>		90%	95%	•
	f.	% of plants conform to AAN Standard	ming	80%	90%	



Leve	in. Efficiency I for Determining core (average)	Max. Efficiency Level for Determining Score (superior)	Method of Determining Score
% Marketed	90%	95%	.l point for every % point over 90%
Years of plant growth t market at 12-15"	2 yrs.	l yr.	.5 point for every month of harvest under I year
% of crop reaching 12-1 height at market time	5" 90%	95%	.l point for every % point over 90%
Container plants per 1000 sq. ft.	2750	3000	.01 point/plant over 2750 plants - not to exceed 3000 plants/1000 sq. ft.
<pre>% Unblemished (free of insect, disease, and mechanical injury)</pre>	90%	95%	.l point for every % point over 90%
% of plants conforming to AAN Standard	80%	90%	.05 point for every % poir over 80%
f .			





## Cost Accounting - Nursery Production Container Grown Deciduous and Evergreen Ground Covers in 6" Cans, Carpet Bugle, Rockspray Cotoneaster, English Ivy, Creeping Juniper, Japanese Spurge

- 1. Cost of lining out stock from 5¢ to 35¢ per plants.
- 2. Cost of containers.
- 3. Cost of growing medium about \$14 per cubic yard.
- 4. Cost of land per 1000 sq. ft.
- 5. Cost of labor chargeable to this crop.
- 6. Overhead (supples, equipment) per 1000 sq. ft.
- 7. Marketing cost about 20% of sum of all other costs.



#### Analysis of Container Grown Plants Deciduous and Evergreen Groundcovers in 6" Cans

Name		Date Started		
School_		Genus	Species	
County_		Total Receip	ots	×
		a Total Expens		
No. sol	d	b Labor-Mgmt.	Income	Z
No. per (b <b>÷</b> a)	1000 sq. ft x 1000	$(x - y = z)$ Income/1000 $(z \div a) \times 1,$	sq. ft	
	Poor	Average	Superior	
1.	80%	90% % Marketed	100%	
2.	3 yrs. Years of P	2 yrs. Iant Growth to Market at	l yr. 18-24" Height	
3.	70% % of cro	80% o Reaching 18 to 24" Grade	90% e at Harvest	
4.	2500	2750 No. Plants per 1000 sq.		
5.	Poor	Good Symmetrical Branching	Excellent	
6.	80%	90% % Blemish Free	95%	
7.	70%	80% % Conforming to AAN Standa	90% ard	

Place a red "G" on each line scale at goal set. Place a red "A" on each line scale at efficiency achieved.



limited the production and income:	Practices and conditions which contributed to superior efficience			

## Approved Practices - Container Frown Deciduous and Evergreen Vines in 6" Cans European Bittersweet, Clematis, Wintercreeper Euonymus, English lvy

Pra	ctice	Reference
١.	Crop Planning, Rotation Schedule	P. 144-150, 169
2.	Container Selection	P. 145-147
3.	Soil Preparation	P. 150-153
4.	Planting	P. 153-154
5.	Staking	P. 117-120
6.	Watering	P. 154-158
7.	Pruning	P. 160-161
8.	Fertilizing	P. 158-160
9.	Pest Control	P. 161-162
10.	Environmental Control	P. 47
11.	Winter Protection	P. 162-164
12.	Grading and Market Preparation	P. 164, 177-178, 184-188

Reference: NURSERY PRODUCTION, A STUDENT HANDBOOK, PSU, 1971

#### Goals Stated in Relation to Efficiency Container Grown Plants, Deciduous and Evergreen Vines in 6" Cans

		Efficiency	<u>Standards</u>
Eff	iciency Factors	Average	Superior
			·
١.	% Marketed	90%	95%
2.	Years of plant growth to market a 12" to 15" plant	2	1
3.	No. of plants/1000 sq. ft.	2750	3000
4.	Symmetrical Form	Good	Excellent
5.	Blemish free plants	90%	95%
6.	% Conforming to AAN Standard	80%	90%

Contrast	Etf	iciency Factors	Min. Enficiency Love for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)	]
Container Grown Deciduous and	a.	% Marketed	90%	95%	01
Evergreen Ground Cover Plants in	b.	Years of plantigrowt to market at 12-15"	h 2 yrs.	l yr.	0
6" Cans	С.	<pre></pre>	90%	95%	· 0\
	d.	Container plants per 1000 sq. ft.	2750	3000	. ( Р Р
	e.	% Unblemished (free disease, insect, and mechanical injury)	·	95%	
	f.	% of crop conforming to AAN Standard	80%	90%	). (0)



Eff		No. Estiliency Level for letermining Core (average)	Max. Efficiency Level for Determining Score (superior)	Merhod of Determining Score
a.	% Marketed	90%	95%	.1 point for every % point over 90%
ŗ.	Years of plant growth to market at 12-157	2 yrs.	l yr.	.5 points for every month of harvest under I year
с.	% of crop reaching 18-24" height at . market time	90%	95%	.1 point for every % point over 90%
d.	Container plants per 1000 sq. ft.	2750	3000	.01 point/plant over 2751 plants not to exceed 3000 plants/1000 sq. ft.
e.	% Unblemished (free of disease, insect, and mechanical injury)	of 90%	95%	.1 point for every % point over 90%
f.	% of crop conforming to AAN Standard	80%	90%	.05 point for every % point over 90%



### Cost Accounting - Nursery Production Container Grown Deciduous and Evergreen Vines in 6" Cans European Bittersweet, Clematis, Wintercreeper Euonymus, English Ivy

- Cost of lining out stock from 5¢ to 35¢ per plant. Use actual price paid.
- 2. Cost of container.
- 3. Cost of growing medium about \$14 per cubic yard.
- 4. Cost of land per 1000 sq. ft.
- 5. Cost of labor chargeable to this crop.
- 6. Overhead (supplies, equipment) per 1000 sq. ft...
- 7. Marketing cost about 20% of sum of all other costs.

#### Analysis of Container Grown Plants Deciduous and Evergreen Vines in 6" Cans

,19we	Date Started_	Ended
School	Genus	Species
County	Total Receipt	S
Sq. ft. used	a Total Expense	S
No. sold	b Labor-Mgmt.   (x - y = z)	ncorre
%o. per 1000 sq. ft (b ÷ a) × 1000	$\frac{(x-y-2)}{\text{Income}/\text{IOOO}} = (z \div a) \times 1,0$	q. ft
Poor	Average	Superior
80%	90% % Marketed ·	100%
	2 yrs. th Until Marketed at 18	
70% 3. % of Crop Conform	80% ing to 18-24" Height Gr	
2500 4. No.	2750 Plants per 1000 sq. ft	3000
Poor 5.	Good Symmetrical Branching	Excellent
80%	90% % Blemish Free	95%
70% 7. % Co	80% nforming t AAN Standa	

Place a red "G" on each line scale at goal set. Place a red "A" on each line scale at efficiency achieved.



limited the production and income:	contributed to superior efficiency		

### Approved Practices - Container Grown Plants Herbaceous Perennial Flowers in 6" Cans Garden Chrysanthemum, Delphinium, Daylily, Peony, Oriental Poppy

Practice			Reference
1.	Crop Planning, Rotation Schedule	Р.	144-150, 169
2.	Container Selection *	Р.	145-147
3.	Scil Preparation	Р.	150-153
4.	Planting	Ρ.	153-154
٥.	Staking	Р.	117-120
6.	Watering	Ρ.	154-158
7.	Pruning ·	Ρ.	160-161
8.	Fertilizing	Р.	158-160
٥.	Pest Control	Ρ.	161-162
10.	Environmental Control	Ρ.	47
11.	Winter Protection	Ρ.	162-164
i2.	Grading and Market Preparation	Ρ,	164, 177-178. 184-188

Reference: NURSERY PRODUCTION, A STUDENT HANDBOOK, PSU, 1971

#### Goals Stated in Relation to Efficiency Container Grown Herbaceous Perennial Flowers in 6" Cans

Efficiency Factors	Efficiency Average	Standards Superior
i. % Marketed	90%	95%
<ol> <li>Years of plant growth to market a</li> <li>12" to 15" plant</li> </ol>	1	1
3. No. of plants/1000 sq. ft.	2750	3000
4. Symmetrical Form	Good	Excellent
5. Blemish free plants	90%	95%

			Min. Efficiency	Max. Effici	
Contost	⊑ t t	iciency Factors	Level for Determining Score (average)	Level for Det Score (supe	
Contest	<u> </u>	Terency ractors	Score (average)	Jeone (Jupe	
Herbaceous Perennial	a.	% Marketed	90%	. 95%	.l ove
Flowers in 6" Cans	b.	% of crop reaching theight at market time		95%	.l i
	C.	Years of plant growt to market at 12-15"	h lyr.	l yr.	.l   har
	d.	Container plants per 1000 sq. ft.	2750	3000	.Ol pla pla
	e.	<pre>% Unblemished (free insect, disease, and mechanical injury)</pre>		95%	.l ove



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			•
Lė	Min. Efficiency evel for Determining Score (average)	Max. Efficiency Level for Determining Score (ruperior)	Method of Determining Score
% Marketed	90%	95%	.l point for every % point over 90%
% of crop reaching.12- height at market time	-15" 90%	95%	.l point for every % point over 90%
Years of plant growth to market at 12-15"	l yr.	l yr.	.l point for every month of harvest under l yr.
Container plants per 1000 sq. ft.	2750	3000	.01 point/plant over 250 plants - not to exceed 275 plants/1000 sq. ft.
<pre>% Unblemished (free of insect, disease, and mechanical injury)</pre>	f 90%	95% <sup></sup>	.l point for every % point over 90%



Cost Accounting - Nursery Production Container Grown Herbaceous Perennial Flowers in 6" Cans Garden Chrysanthemum, Delphinium, Daylily, Peony, Oriental Poppy

- 1. Cost of lining out stock from  $10^{\circ}$  to 35° per plant.
- 2. Cost of container.
- 3. Cost of growing medium about \$14 per cubic yard.
- 4. Cost of land per 1000 sq. ft.
- 5. Cost of labor chargeable to this crop.
- 6. Overhead (supplies, equipment) per 1000 sq. ft.
- 7. Marketing cosi about 20% of sum of all other costs.



#### Analysis of Container Grown Plants Herbaceous Perennial Flowers in 6" Cans

Name		Date Started_	Ended	
School_		Genus	Species	<u>.</u>
County_		Total Receipt	ts	×
Sq. ft.	used	a Total Expense	95	у
No. sol	1000 sq. ft × 1000	b Labor-Mgmt.   (x - y = z)   Income/1000 s (z ÷ a) x 1,0	ncome sq. ft	Z
	Poor	Average	Superior	
1.	80%	90% % Marketed	100%	
2.	2 yrs. Years c	l yr. of Growth to Reach I2-15"	l yr. Height	
3.		80% orming to 12-15" Height G		
4.	2500 N	2750 No. Plants per 1000 sq. f	3000	
5.	Poor	Good Symmetrical Branching	Excellent	
6.	80%	90% % Blemish Free	95%	

Place a red "G" on each line scale at goal set. Place a red "A" on each line scale at efficiency achieved.

limited the production and income:	Practices and conditions which contributed to superior efficiency:

Prepared by the Department of Agricultural Education, The Pennsylvania State University, in cooperation with the Pennsylvania Department of Education and Pennsylvania Vocational Agriculture Teachers.



Supervised Occupational Experience Record Forms
for
Ornamental Horticulture
(Preliminary)
1974

TURFGRASS MAINTENANCE, ESTABLISHMENT, PRODUCTION - F 1-28

Turfgrass Maintenance - Residential F 2-8

Golf Course Maintenance - Employee F 9-14

Turfgrass Establishment F 15-20

Sod Production F 21-26

To be used with any production, occupational or work experience record book.

Department of Agricultural Education The Pennsylvania State University in cooperation with Bureau of Vocational Education Pennsylvania Department of Education

#### Using The Forms

The five record sheet included in this unit are intended to be used with any production, occupational or work experience record book for high school vocational agriculture programs.

Approved Practices gives specific references to production or service practices that are generally accepted in industry as giving superior results if appropriately applied. A particular business firm might use variations of some of these practices because of unusual local conditions. Students carrying out production projects should find these references especially helpful. Students in agricultural production or services work experience will find them useful guides to what will be expected of them on the job.

Goals are stated in relation to efficiency. They are drawn up on the basis of comparisons of superior achievement with average achievement. The goals given are considered realistic in terms of production enterprises or work experience in production or services occupations. Successful businesses rank somewhere between "average" and "superior" in their goals.

The <u>Efficiency Factor</u> form provides a means for giving a numerical score on goal achievement. It is equally applicable to production enterprises, production occupations or service occupations. The scores are used as one base for comparisons in the judging of record books in regional and state record book contests.

<u>Cost Accounting</u> record forms serve as a guide for calculating the costs and profit in a production enterprise or a production experience.

These figures, together with production figures are used in the analysis of the enterprise.

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The Employment Achievement form is used in place of the Cost Accounting form when the experiences involve employment in a service occupation rather than production occupation.

The Analysis form should be marked at the beginning of the experience program with a "G" to indicate the goal that a student has set for himself. The same scales are marked with an "A" to indicate actual achievement at the end of the experience program. The analysis sheet provides for an evaluation of the approved practices used and their relationship to production or service and income.

Example of the Use of Efficiency Factors and Production Goals

The Pennsylvania Agricultural Production Program Record Book provides space for the student to list appropriate efficiency factors for each productive enterprise. In the example below, the figures in the column "Local Efficiency Standards" will have been obtained through group study by the students with the help of the teacher. An analysis of records of similar enterprises completed in previous years by students in the same school will also serve as a guide.

PRODUCTION GOALS:	Potted Chrysanthe	emum	ENTE	ERPRISE
Efficiency Factor	Local Efficiency Average	y Standards Superior	Student Goal	Student Achievement
Percent marketed	95 <b>%</b>	100%	100%	97%
Number of 6" pots per 100 sq. ft. of bench space	75	100*	100	<b>9</b> 8
Number of blooms/6" pot	18	24	24	22
Percent of pots in 16" to 18" height range including pot marketed	90	95	95 <b>%</b>	92 <b>%</b>

<sup>\*</sup>Optimum Number



# Approved Practices Turfgrass Maintenance - Residential .

Pra	ctice	Re	ference
1.	Mowing	Ρ.	48-51
2.	Soil Sampling	Ρ.	38-39
3.	Fertilizing	Ρ.	39-48
4.	Watering	Р.	52-55
5.	Dethatching	Ρ.	51, 109-110
6.	Aerating	Ρ.	51-52, 97-98
7.	Insect and Disease Control	Ρ.	84-92
8.	Weed Control	Ρ.	55 <b>-</b> 83̯
9.	Trimming and edging	Ρ.	51
10.	Resodding and Reseeding	Ρ.	144-145

Reference: TURFGRASS, MAINTENANCE AND ESTABLISHMENT - A STUDENT HANDBOOK, PSU, 1968

## Goals Stated in Relation to Efficiency Turfgrass Maintenance - Residential

		Efficienc	y Standards
Eff	iciency Factors	Average	Superior
l. or	Profit	10%	15%
1.	Employer satisfaction	good (90)	excell. (100)
2.	Maintain lawn height at 11/2 inches	remove I/2"	remove 1/4"
3.	Maintain weed-free	2% weeds	0% weeds
4.	Maintain disease-free	medium	none
5.	Maintain insect free	medium	none
6.	Maintain good color	medium green	dark green
7.	Maintain good density	medium dense	very dense
8.	Maintain neat appearance	bocg	excellent



Contest	• Efficiency Factors	Min. Efficiency Level for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)
Turfgrass	a. Profit	10%	15%
Maintenance - Residential	or a. Employer Satisfaction	good (90)	excellent (100)
	b. Mowing rate per hour	4,000 sq. ft./hr.	5,000 sq. ft./hr.
	c. Material application per hour liquid (Knap Sack)	3,000 sq. ft./hr.	4,000 sq. ft./hr.
	granular (B <b>r</b> oadcast spreader)	8,000 sq. ft./hr.	10,000 sq. ft./hr.
	d. Trimming (Powered Equipment)	500 ft./hr	700 ft./hr.
	e. Lawn Sweeping (with Lawn Sweeper Machine)	4,000 sq. ft./hr.	5,000 sq. ft./hr.



F-6

!			_
ficiency Factors	Min. Efficiency Level for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)	Method of Determining Score
Profit	10%	15%	.l point for every
Employer Satisfaction	good (90)	excellent (100)	% over 10% .l point for every point over 90%
Mowing rate per hour	4,000 sq. ft./hr.	5,000 sq. ft./hr.	.2 point for every 100 sq. ft. over 4,000 sq. ft.
Material application per hour liquid (Knap Sack)	3,000 sq. ft./hr.	4,000 sq. ft./hr.	.2 point for every 100 sq. ft. over 3,000 sq. ft.
granular (B <b>r</b> oadcast spreader)	8,000 sq. ft./hr.	10,000 sq. ft./hr.	.5 point for every 1000 sq. ft. over 8,000
Trimming (Powered Equipment)	500 ft./hr.	700 ft./hr.	.5 point for every 100 sq. ft. over 500 sq. ft.
Lawn Sweeping (with Lawn Sweeper Machine)	4,000 sq. ft./hr.	5,000 sq. ft./hr.	.05 point for every 100 sq. ft. over 4,000 sq. ft.



# Cost Accounting - Turfgrass Maintenance - Residential

- Cost of supplies, fertilizer, herbicides, fungicides, insecticides, limestone. Charge or costs of quantities applied for 1000 sq. ft.
- 2. Equipment use charge use hourly rate per machine based on depreciation rate and estimated total hours of use the machine will provide until replaced.
- 3. Wages, based on hourly rate. It could be estimated per 1000 sq. ft. for particular task.
- 4. Overhead transportation, taxes, telephone, office services, etc.
- 5. Profit difference between income and costs.

# Employment Achievement

Turfgrass Maintenance, Residential –  ${\rm Lmp\,Loyee}$ 

į.
occupationa

# Analysis of Turfgrass Maintenance-Residential

School Name of employer  County Address  Address  Total Receipts  Date Started Ended Total Expenses  Total Hours Profit (x-y)  Poor Average Superior  5% 10% 15%  Profit  Or  Poor Good Excellent  Employer Satisfaction  Poor Good Excellent  Address  Total Receipts  Date Started Ended Total Expenses  Total Hours Profit (x-y)  Poor Good Excellent  Address  Address  Total Receipts  Date Started Ended Total Expenses  Foor Good Excellent  Address  Poor Good Excellent  Address  Foor Good Excellent  Address  Total Receipts  Foor Good Excellent  Foor Good Excellent  Address  Foor Good Excellent  Foor Good Excellent  Address  Foor Good Excellent  Foor Good Excellent  Address	Name		Number of Custo	mers	
Address  Total Receipts  Date Started Ended Total Expenses  Total Hours Profit (x-y)  Poor Average Superior  5% 10% 15%  1. Profit  or  Poor Good Excellent  2. Maintenance of Lawn Height  Poor Good Excellent  4. Maintenance of Good Color  Maintenance of Density  Poor Good Excellent  Employer Satisfacton  Excellent  Address  Total Receipts  Total Expenses  Total Expenses  Total Food Excellent  Total Expenses  Total Expenses  Total Food Excellent  Total Expenses  Total Food Excellent  Total Expenses  Total Expenses  Total Hours  Total Expenses  Total Expenses  Total Food Excellent  Total Expenses  Total Expenses  Total Food Excellent  Total Expenses  Total Expenses  Total Food Excellent  Total Food Excellent	School		Name of employe	r	
Total Receipts  Date StartedEndedTotal Expenses  Total HoursProfit (x-y)			•		
Date Started	<b>A</b>				
Poor Average Superior    Poor			Total Receipts_		
Poor Average Superior  1.	Date Start	ed	EndedTotal Expenses_		· .
Poor Good Excellent  Poor Good Excellent  Maintenance of Lawn Height  Poor Good Excellent  Poor Good Excellent  Maintenance of Good Color  Poor Good Excellent  Maintenance of Good Color  Maintenance of Density  Poor Good Excellent  Maintenance of Heat Appearance	Total Hour	S	Profit (x-y)		
Poor Good Excellent  Poor Good Excellent  Maintenance of Lawn Height  Poor Good Excellent  Poor Good Excellent  Maintenance of Good Color  Poor Good Excellent  Maintenance of Good Color  Maintenance of Density  Poor Good Excellent  Maintenance of Heat Appearance		- <u>.</u> .			
Poor Good Excellent  Poor Good Excellent  Maintenance of Lawn Height  Poor Good Excellent  Poor Good Excellent  Poor Good Excellent  Poor Good Excellent  Maintenance of Good Color  Poor Good Excellent  Maintenance of Good Color  Poor Good Excellent  Maintenance of Density  Poor Good Excellent  Maintenance of Density		Poor	Average	Superior	
Poor Good Excellent  Maintenance of Lawn Height  Poor Good Excellent  Maintenance of Lawn Height  Poor Good Excellent  Pest Free (weeds, insects, diseases) Maintenance  Poor Good Excellent  Maintenance of Good Color  Poor Good Excellent  Maintenance of Density  Poor Good Excellent  Maintenance of Density	1.	5%	· · · · · · · · · · · · · · · · · · ·	15%	·
Poor Good Excellent Pest Free (weeds, insects, diseases) Maintenance  Poor Good Excellent Maintenance of Good Color  Poor Good Excellent Maintenance of Density  Poor Good Excellent Maintenance of Density		Poor		Excellent	
Poor Good Food Maintenance of Good Color  Poor Good Fxcellent Maintenance of Density  Poor Good Fxcellent Maintenance of Density  Poor Good Fxcellent Maintenance of Heat Appearance	2.	Poor		Excellent	
Poor Good Excellent  Maintenance of Good Color  Poor Good Excellent  Maintenance of Density  Poor Good Excellent  Maintenance of Heat Appearance					
Poor Good Excellent  Maintenance of Density  Food Good Excellent  Maintenance of Heat Appearance		Poor		Excellent	
6. Maintenance of Heat Appearance		Poor		Excellent	*
•		Poor			
Poor Good Excellent 7. Customer Satisfaction	7.	Poor		Excellent	

Place a red "G" on each line scale at goal set. Place a red "A" on each line scale at efficiency achieved.



limited achievement:	contributed to superior achieveme		



# Approved Practices Golf Course Maintenance - Employee

Pra	ctice	Ret	ference
1.	Whipping or Poling	Р.	108
2.	Mowing: Fairways Greens Tees Roughs	P. P. P.	106-198 106-107 107-108 107 106
3.	Soil Sampling	Ρ.	38-39
4.	Fertilization	Ρ.	104-105
5.	Sand Traps	Ρ.	112
6.	Irrigation and Syringing	Ρ.	110-111
7.	Cap and T Marker Changing	Ρ.	111-113
8.	Dethatching	Ρ.	109-110
9.	Aerating	Ρ.	108-109
10.	Top Dressing	Ρ.	109
11.	Disease Control	Р.	84-87
12.	Insect Control	Ρ.	87-92
13.	Trimming and Edging	Ρ.	51
14.	Resodding and Reseeding	Ρ.	144
15.	Weed Control	Ρ.	55-83

Reference: TURFGRASS MAINTENANCE AND ESTABLISHMENT - A STUDENT HANDBOOK, PSU 1968.

# Goals Stated in Relation to Efficiency Golf Course Maintenance Employee

		Efficiency S <sup>-</sup>	tandards
Eff	iciency Factors	Average	Superior
1.	Maintain grass heights Roughs Fairways Tees Greens	3" to 6"   3/4" to 2"  /2" to  "  none	1/4" to 1/2" 3/16" to 5/16"
2.	Wear distribution Cups changed Ball marks and divits	daily weekly	twice daily daily repair
3.	Sand trap raking	every four days	<b>every two</b> days
4.	Trimming, collars, trap edges, walks, etc.	weekly	twice weekly
5.	Free of insects, diseases and weeds	some	none
6.	Good color and dense growth	good	excellent



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Contest	Eff	iciency Factors	Min. Efficiency Level for Determing Score (average)	Max. Efficiency Level for Determing Score (superior)	D
Golf Course Maintenance-	a.	Mowing, 18 holes per day*	•		
Employee		(I) Rough	60 acres/day	80 acres/day	•5 o
		(2) Fairways	80 acres/day	100 acres/day	•5 o
		(3) Greens (riding m.	) 4 hrs/18 holes	3 hrs/18 holes	.5 I
		(4) Tees (hand m.)	4 hrs/18 holes	3 hrs/18 holes	•5 I
	b.	Material application (powered)			'
		( ) liquid - greens	4 hrs/18 greens	3 hrs/18 greens	.5
1		- fairways	8 hrs/18 fairways	10 hrs/18 fairways	.5 +
		(2) granular - greens	5 hrs/18 greens	4 hrs/18 greens	•5 +
		-50 acre fairway	l2 hrs.	8 hrs.	.5 †
	С.	Topdressing/green	2 hrs.	l hr.	.5 I
	d.	Aerating/green	60 minutes	45 minutes	.5 I
	e.	Cup, Tee marker changing, 18 holes	2 hrs.	1 1/2 hrs.	.5 I
	f.	Trap raking, powered, 18 holes	6 hrs.	4 hrs.	.5 †
	g.	Verticutting, slicing spiking-per green, hand machine	, 30 minutes	20 minutes	•5 

<sup>\*</sup> Depending upon terrain and equipment.



	Min. Efficiency Level for Determing	Max. Efficiency Level for Determing	Method of Determining
iency Factors	Score (average)	Score (superior)	Score
owing, 18 holes per ay*			
l) Rough	60 acres/day	80 acres/day	<ul><li>.5 point, every 10 acres over 60</li></ul>
2) Fai <b>r</b> ways	80 acres/day	100 acres/day	.5 point, every 10 acres over 80 °
3) Greens (riding m.	) 4 hrs/18 holes	3 hrs/18 holes	.5 point, every 1/2 hr. less than 4
4) Tees (hand m.)	4 hrs/18 holes	3 hrs/18 holes	.5 point every 1/2 hr. less than 4
aterial application powered)			
l) liquid - greens	4 hrs/18 greens	3 hrs/18 greens	.5 point every I/2 hr. less than 4
– fai <b>r</b> ways	8 hrs/18 fairways	O hrs/ 8 fairways	.5 point every hour less than 8
2) granular – greens	5 hrs/18 greens	4 hrs/18 greens	.5 point every hour less than 12
-50 acre fairway	12 hrs.	8 hrs.	.5 point every hour less than 12
opdressing/green	2 hrs.	l hr.	.5 point every half hour less than 2
erating/green	60 minutes	45 minutes	.5 point every 15 minutes less than 60
up, Tee marker changing, 18 holes	2 hrs.	1 1/2 hrs.	.5 point every I/2 hour less than 2
rap raking, powered,	6 hrs.	4 hrs.	.5 point every hour less than 6
Perticutting, slicing spiking-per green, hand machine	, 30 minutes	20 minutes	.5 point every 10 minutes less than 30

rain and equipment.



# EMPLOYMENT ACHIEVEMENT Golf Course Maintenance - Employee

۱.	. Personal satisfaction (Do	you enjoy the wo	rk?)
	Exc.	Good	Poor
2.	. Monetary increases (After	3 to 6 months)	
	Exc.	Good	Poor
<b>з</b> .	. Fringe benefits (Insurance	e, retirement, ot	her)
	Exc.	Good	Poor
4.	. Opportunity for advancemen	nt (in 1 to 5 yea	rs)
	Exc.	Good	Poor ·
5.	. Variety of educational exp goals	perience <b>s</b> accordi	ng to students occupationa
	Exc.	Good	Poor



# Analysis of Golf Course Maintenance-Employee

County Income  Address Employer  Poor Average Superior Good Excellent Supervisor's Rating of Performance  Greater than 6" 3" 4" Roughs  Greater than 2" 2" 1 3/4" Fairways  1/4" 1/2" 3/4"  4. Tees	Ended
Poor Average Superior Good Excellent Supervisor's Rating of Performance  Greater than 6" 3" 4" Roughs  Greater than 2" 2" 1 3/4" Fairways  1. T/4" 1/2" 3/4" Tees	
Poor Average Superior  Foor Good Excellent Supervisor's Rating of Performance  Greater than 6" 3" 4" Roughs  Greater than 2" 2" 1 3/4" Fairways  1/4" 1/2" 3/4"  Tees	
1. Supervisor's Rating of Performance  Greater than 6" 3" 4"  Roughs  3. Greater than 2" 2" 1 3/4"  Fairways  1/4" 1/2" 3/4"  4. Tees	
1. Supervisor's Rating of Performance  Greater than 6" 3" 4"  Roughs  3. Greater than 2" 2" 1 3/4"  Fairways  1/4" 1/2" 3/4"  4. Tees	
1. Supervisor's Rating of Performance  Greater than 6" 3" 4"  Roughs  3. Greater than 2" 2" 1 3/4"  Fairways  1/4" 1/2" 3/4"  4. Tees	
Greater than 6" 3" 4"  Roughs  Greater than 2" 2" 1 3/4"  Tees  7/16" 1/4" 3/16"	<u>-</u>
2. Roughs  3. Greater than 2" 2" 1 3/4"  Fairways  1/4" 1/2" 3/4"  Tees	
3. Greater than 2" 2" 1 3/4"  4. Tees  5/16" 1/4" 3/16	_
3. Fairways  1/4" 1/2" 3/4"  4. Tees  5/16" 1/4" 3/16'	•
4. Tees 5/16" 1/4" 3/4" 3/16'	_
4. Tees 5/16" 1/4" 3/16'	
5/16" 1/4" 3/16'	_
5/16" 1/4" 3/16"	_
5. Greens	1
Amount of grass removed per mowing	
. 0% 2% 5%	_
6. Approximate % of area in weeds	
Excellent Good Poor	
7. Turfgrass Density	
None Medium Severe	<del></del>
8. Insect and Disease Damage	•
Excellent Good Poor 9. Neatness	<del></del>
Place a red "G" on each line scale at goal set. Place a re line scale at efficiency achieved.	d "A" on each
Practices and conditions that Practices and conditions timited achievement: Practices and conditions contributed to superior	



# Approved Practices Turfgrass Establishment

Pra	ctice	Reference
١.	Grading and drainage	P. 116-122
2.	Soil testing	P. 38-39
3.	Soil preparation, applying fertilizer and physical conditioners	P. 112-130
4.	Species and cultivar selection	P. 132-136
5.	Seeding	P. 130-132, 136-141
6.	Sodding	P. 142
7.	Spriging, stolonizing, or plugging	P. 141-142
8.	Care of New Grass	P. 143
9.	Watering	P. 143
10.	Mulching	P. 140-141
11.	Renovation	P. 144-145
12.	Pest Control (weeds, insects, diseases)	P. 55-92

Reference: TURFGRASS MAINTENANCE AND ESTABLISHMENT - A STUDENT HANDBOOK, PSU 1968.



# Goals Stated in Relation to Efficiency

# Turfgrass Establishment

		Efficiency	Standards
Eff	iciency Factors	Average	Superior
١.	Profit	10%	15%
2.	Sod established in	4 weeks	3 weeks
3.	Seeding established 3" high	6 weeks	5 weeks
4.	Plugging established	6 weeks	4 weeks
5.	Spriging established	6 weeks	4 weeks
6.	Turfgrass density	good	excellent
7.	Customer satisfaction	good	excellent

Contest	Efficiency Factors	Min. Efficiency Level for Determining Score (Average)	Max. Efficiency Level for Deter .ning Score (Superior)
Turfgrass Establishment	I. Percent Profit	10%	15%
	I. Sod established in:	4 weeks	3 weeks
	2. Seeding established in:	6 weeks	5 weeks
	3. Plugging established in:	6 weeks	4 weeks
	4. Spriging established in:	6 weeks	4 weeks
	5. Turfgrass density	good (90)	excellent (100)
	6. Customer satisfaction	good (90)	excellent (100)



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•			
ficiency Factors	Min. Efficiency Level for Determining Score (Average)	Max. Efficiency Level for Determining Score (Superior)	Method of Determining Score
Percent Profit	10%	15%	.2 points for each % over 10%
Sod established in:	4 weeks	3 weeks	.i point for each day les <b>s</b> than 28
Seeding established in:	6 weeks	5 weeks	.l point for each day less than 35
Plugging established in:	6 weeks	4 weeks	.5 point for each day less than 28
Spriging established in:	6 weeks	4 weeks	.5 point for each day less than 28
Turfgrass density	good (90)	excellent (100)	.l point for rating each point over 90
Customer satisfaction	good (90)	excellent (100)	.l point for rating each point above 90





#### Cost Accounting - Turfgrass Establishment

- I. Cost of plant materials per 100 sq. ft.
  - (a) seed
  - (b) sod
  - (c) sprigs
  - (d) plugs
- 2. Cost of grading, machinery hourly rate, plus operator hourly rate, per 100 sq. ft.
- 3. Cost of supplies: fertilizer, limestone, straw mulch, soil hauled in etc. per 100 sq. ft.
- 4. Labor, other than grading machine operator.
- 5. Equipment use charge, hourly rate, (based on depreciation).
- 6. Overhead: transportation, telephone, office services, taxes, etc.
- 7. Range of usual charges:

```
sodding - 25¢ to 35¢/sq. ft. seeding - 10¢ to 15¢/sq. ft. plugging - 20¢ to 30¢/sq. ft. spriging - 20¢ to 30¢/sq. ft.
```



# Analysis of Turfgrass Establishment

Name		Date Started	Ended	
School	·	Total Hours_		
County		Number of Custo	mers	
Address_		Total Receipts_	<del></del>	×
	<u> </u>	Total Expenses_		У
,		Profit (x-y)		
	Poor	Average	Superior	
1.	5%	10% Profit	15%	
2.	3 wks.	4 wks. Sod Establishment-Weeks	5 wks.	
2.	5 wks. Seed	6 wks. ding Established to 3" high-we	7 wks. eeks	
2:	4 wks.	6 wks. Plugging Established-weeks	8 wks.	
2.	4 wks.	6 wks. Spriging Established-weeks	8 wks.	
2.	excellent	good Turfgrass Density	poor	
3.	······································	good Customer Satisfaction	poor	
<del></del>				

Place a red "G" on each line scale at goal set. Place a red "A" on each line scale at efficiency achieved.



achievement:	Conditions	IIIdI I	imiled	contributed to superior achievement:
	· · · · · · · · · · · · · · · · · · ·			

# Approved Practices Sod Production

Pra	<u>ctice</u> .	Re	efe	rence
١.	Site selection			
2.	Rotations			
3.	Soil testing, grading, preparation	В	р.	38-39, 112-130
4.	Crop selection	В	р.	132-136
5.	Seeding	В	р.	130-132 136-141
6.	Fertilizing	В	р.	39-48
7.	Watering	В	р.	52-55
8.	Pest Control, weeds, insects, diseases	В	р.	55-92
9.	Mowing	В	р.	48-51
٥.	Harvesting	Α	р.	124
1.	Preparation for Market	Α	р.	124
2.	Transportation			

Reference: A. - TURF MANAGEMENT, 1962, Musser, McGraw-Hill B. - TURFGRASS MAINTENANCE AND ESTABLISHMENT. A

STUDENT HANDBOOK, PSU 1968.



# Goals Stated in Relation to Efficiency

## Sod Production

Efficiency Factors	Efficiency Average	Standards Superior
Months of growth to market	24	18
Percent marketed	85	95
Percent marketed within specification for state certification	85	95



Contest	Efficiency Factor	Min. Efficiency Level for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)
Sod	a. Percent marketed	85	95
	b. Months of growth to market	24	18
	c. Percent marketed which meets specification for state certification	85	95



Factor	Min. Efficiency Level for Determining Score (average)	Max. Efficiency Level for Determining Score (superior)	Method for Determining Sccre
marketed	85	95	.075 point for each
ef growth to	24	18	2 points for each month less than 24
marketed which pecification for ertification	85	95	.075 point for each 1% over 85%



# Cost Accounting - Sod Production

- I. Land cost
- 2. Seed cost
- 3. Supplies
- 4. Labor
- 5. Equipment
- 6. Overhead
- 7. Marketing cost, (20% of production cost)



## ANALYSIS OF SOD PRODUCTION

Name	Date Started	Ended
School	Variety	/
County		inventory) ×
No. of sq. ft. of space No. of sq. ft. harvested	Total expenses  (including beginn)  Labor and management (x - y = z)	ing inventory) ent income z t
Poor	Average	Superior
75	85	95
	cent Marketed	
30	24 Required to Harvest	18
2. Months F	Required to Harvest	
<ul><li>75</li><li>3. Percent Meets Specified</li></ul>	85 fication for State Cert	95 ification
Place a red "G" on each line state at efficiency achie	eved. h Practices and con	• nditions which
limited the production and income:	contributed to su	uperior efficiency:

Prepared by The Department of Agricultural Education, The Pennsylvania State University, in cooperation with the Pennsylvania Department of Education and Pennsylvania Vocational Agricultural Teachers.

#### LANDSCAPE MAINTENANCE AND CONSTRUCTION MANUAL

#### Outline

### Part I. Job Opportunities in Landscape Construction

Landscape Worker
Garden Center Worker
Garden Center Salesman
Landscape Foreman
Park Foreman
Landscape Contractor
Garden Center Manager
Grounds Superintendent

#### Part II. Landscape Maintenance

# Chapter I: Lawn Maintenance

Weed Identification
Turf Identification
Cultural Practices

pest control
mowing, trimming, and edging
fertilizing and liming
aeration, dethatching, and verti cutting
irrigation
renovation: seeding and vegetative
soil conditioners

### Chanter 2: Bed Maintenance (annual, perennial, ground cover)

Plant Identification Cultural Practices

thinning and transplanting
fertilization
renovation
watering
pest control
soil conditioners and mulches

## Chapter 3: Shrub Maintenance

Plant Identification Cultural Practices

pruning (thinning out, heading back, shearing and root pruning) fertilizing and liming:
soil conditioners and mulches
pest control
watering
transplanting



### Chapter 4: Tree Maintenance\*

Plant Identification Cultural Practices

## Chapter 5: Maintenance of Paved Areas and Structures

Paved Area Maintenance

have further training.

cleaning repair snow removal

Landscape Structures Maintenance

painting
minor repair

cement patching park replacement

cleaning

Chapter 6: Safe Use and Maintenance of Tools, Equipment and Machinery

Safe Hand Too! Use and Care

soil handling tools

shove! mattocks and picks digging iron rales

cutting tools

saws axes shears



Safe Equipment Operation

walk behind mowers

safety and maintenance check list use of safety apparatus proper methods and techniques in relation to situation

riding mowers

safety and maintenance check list
• use of safety apparatus
proper methods and techniques in relation to situation

power trimming and edging equipment

safety and maintenance check list use of safety apparatus proper methods and techniques in relation to situation

spraying and spreading equipment

safety and maintenance check list use of safety apparatus proper methods and techniques in relation to situation

garden tractors and attachments (rototiller, trailer, blade, snow blower)

safety and maintenance check list use of safety apparatus in relation to situation

turf renovation equipment (dethatchers, spikers, aerators, vacuums, blowers)

safety and maintenance check list use of safety apparatus proper methods and techniques in relation to situation

preventive maintenance on equipment

lubrication
power train
sharpening blades (rotary blades)

Part III. Landscape Construction

Chapter I: Blueprint Reading and Laying Out Blueprint Reading

Legend

map orientation
scale



Construction Symbols
Paving Symbols
Boundries Symbols
Contour Lines
Utilities Symbols
Plant Symbols

trees-

deciduous coniferous

shrubs-

deciduous coniferous broadleaf

beds

Laying Out Plans

use of blueprints
throwing a tape
marking and staking (large and specimens plant material)
cutting beds
placing of plant material

Chapter 2: Construction; Drainage, Irrigation, and Grading

Drainage

tiling french drains

**Irrigation** 

parts nomenclature pipe fitting (metal) pipe fitting (poly) lead assembly drainage

Grading

tools and equipment

Abney level Builders level Philadelphia Reading Rod



sub or rough

contour lines (map) contour staking contour establishment

final

use of soil conditioners and amendments use of grading tools

iron rake
grading rake
shove!

use of equipment

Abney level Builders level Philadelphia Reading Rod

Chapter 3: Construction of Plantings

Soil Modification

soil conditioners soil amendments and fertilizers

Proper handling of Plant Material

moving and transplanting watering before planting

Digging

proper hole size and shape according to AAN standards filling

adding organic matter watering replacing soil around root ball making "save on"

Staking and Wrapping

trees with a 2" caliber or less

double stake wire and hose

trees with a longer than 2" caliber

double stake or thicker stake wire and hose



wrapping

method materials functions

Mulching

types available special preparation for mulching when and where to mulch depth needed for proper coverage

Chapter 4: Construction of Lawns

Drainage Irrigation Soil Sampling Soil Modifications

conditioners
amendments
fertilizers and lime

Grading Seeding

equipment selection (hopper seeder spreader, broad east seeder spreader, brillion seeder spreader variety of seed in relation to specific condition seeding rate rolling mulching (straw, peat, netting, hydro-mulching) watering

Vegatative

sodding

variety of sod in relation to specific conditions proper installation methods and techniques rolling watering

other methods

spriging stolonization plugging



### Chapter 5: Landscape Structures

Traffic areas (drives, walks, steps, ramps, landings, and patios)

concrete a**s**phalt bricks patio blocks flag stone mulches rail road ties stone tile

Proper methods, procedures, and techniques applicable in constructing with these materials

Retaining walls (uses: tree walls, planters and terraces)

dry

wood

stone rail road tie brick

Proper methods, procedures, and techniques applicable in constructing with these materials

masonry

stone brick poured concrete concrete block

Proper methods, procedures, and techniques applicable in constructing with these materials

Screen and fences

wood

setting posts setting posts in concrete section placing

metal

setting posts setting posts in concrete section placing

Ornamental Pools

forms mixing finishing techniques

Chapter 6: Safe Equipment Operation and Preventive Maintenance

Rototillers

safety and maintenance check list use of safety apparatus proper methods and techniques in relation to situation



Sod cutters

safety and maintenance check list use of safety apparatus proper methods and techniques in relation to situation

Seeders

safety and maintenance check list use of safety apparatus proper methods and techniques in relation to situation

Garden tractor

safety and maintenance check list use of safety apparatus proper methods and techniques in relation to situation

Preventive Maintenance on Equipment

lubrication power train

Part IV. Ornamental Plant Materials

Chapter I: Plant Characteristics

Hardiness Zone
Form and Size at Maturity
Foliage (type, size, time)
Flower and Fruiting (type, size, time)
Growth rate
Value and Usage

Chapter 2: Plant Classification

Trees, shrubs, vines, groundcovers Deciduous Evergreen

> needled broad leaved

Small, medium, large

Chapter 3: Plant Identification

Visual Appearance (general)
Use of keys (Binomial system of nomenclature)

Appendices

- A. Trouble shooting plant problems
- B. Trouble shooting construction problems
- C. Commonly used ornamental plants
- D. Plant substitutes

