

MICHIGAN STATE UNIVERSITY Extension

## Beginning Farmer Webinar Series: Christmas tree production

**Bert Cregg, Ph.D.**  
Michigan State University  
Department of Horticulture  
Department of Forestry

**Jill O'Donnell**  
Michigan State University Extension

MICHIGAN STATE UNIVERSITY Extension

## Today's Presenters

**Bert Cregg**  
Associate Professor  
MSU Departments of Horticulture  
and Forestry  
cregg@msu.edu  
517-355-5191 x 1335



**Jill O'Donnell**  
Statewide Christmas tree Educator  
MSU Extension  
odonne10@msu.edu  
231-779-9480




MICHIGAN STATE UNIVERSITY Extension

## Leading Christmas tree producing states

Ranked by Number of Trees Harvested

1. Oregon	6,400,000
2. North Carolina	4,200,000
<b>3. Michigan</b>	<b>2,000,000</b>
4. Pennsylvania	1,000,000
5. Wisconsin	600,000
6. Washington	600,000

Adapted from USDA Census of Agriculture

MICHIGAN STATE UNIVERSITY Extension

## Christmas Tree Production in Michigan

- 27,000 acres
- 560 commercial farms (>5 acres)
- Sales:
  - Trees: \$31 million
  - Greens: \$4.1 million





MICHIGAN STATE UNIVERSITY Extension

### Sales and marketing

- Who is going to buy my trees?
  - Choose and cut
  - Wholesale
  - Retail
  - Just for fun



MICHIGAN STATE UNIVERSITY Extension

### Site selection

- Site factors
  - Climate (general climate & micro-climate)
  - Soil
    - Drainage
    - pH
- Market factors



←



MICHIGAN STATE UNIVERSITY Extension

### Species selection

- Adaptability
- Growth rate
- Color
- Form
- Branch structure
- Scent
- Needle retention



←

MICHIGAN STATE UNIVERSITY Extension

### Principle Christmas tree species

- Firs (*Abies spp.*)
- Spruces (*Picea spp.*)
- Douglas-fir (*Pseudotsuga*)
- Pines (*Pinus spp.*)

←

MICHIGAN STATE UNIVERSITY Extension

### Firs

- Single-needle conifers
- 6-8 Types grown in Michigan
  - Fraser
  - Balsam
  - Canaan
  - Concolor
  - Corkbark
  - Korean
  - Turkish



←

MICHIGAN STATE UNIVERSITY Extension

### Fraser fir

- “Cadillac” of Christmas trees
- Excellent
  - Form
  - Needle color
  - Needle retention
- Needs acidic soils
- Good soil drainage



←

MICHIGAN STATE UNIVERSITY Extension

### Concolor fir

- Native to western US
- Long, blue-green needles
- Citrus-like scent
- More tolerant of poor soils than other firs



---

MICHIGAN STATE UNIVERSITY Extension

### Balsam fir

- Native to eastern North America
- Widely known for excellent scent



---

MICHIGAN STATE UNIVERSITY Extension

### Spruces

- Single needle
- Sharp
- 3 types grown in Michigan
  - Colorado blue
  - White
  - Black hills



---

MICHIGAN STATE UNIVERSITY Extension

### Colorado blue spruce

- Striking blue color
- Broadly adapted



---

MICHIGAN STATE UNIVERSITY Extension

### Douglas-fir



---

MICHIGAN STATE UNIVERSITY Extension

### Douglas-fir

- Native to western US
- Broadly adapted
- Needlecast issues



---

MICHIGAN STATE UNIVERSITY Extension

### Pines

- Needles grouped in fascicles
- 2 types grown in Michigan
  - Eastern white
  - Scotch



←

MICHIGAN STATE UNIVERSITY Extension

### Scotch pine

- Stress tolerant
- Dark green
- Dense form



←

MICHIGAN STATE UNIVERSITY Extension

### Eastern white pine

- Native to eastern US
- Needs acidic soils
- Long, soft needles
- Dense, bushy tree
- Fast growing



←

MICHIGAN STATE UNIVERSITY Extension



UGA0008531

←



MICHIGAN STATE UNIVERSITY Extension

### Site Preparation

- Considerations
  - Tree planting
  - Initial weed control
  - Future operations (i.e., equipment access)
- Mechanical
- Chemical

---



MICHIGAN STATE UNIVERSITY Extension

### Regeneration

- Natural
  - Seed tree
- Artificial
  - Plant seeds or seedlings
- Most US growers plant seedlings



---

MICHIGAN STATE UNIVERSITY Extension

### Bare-root seedlings



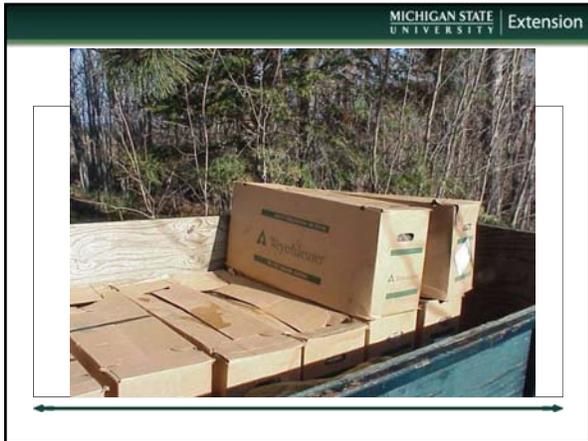
---

MICHIGAN STATE UNIVERSITY Extension

### Nursery-grown transplants



---



Planting density

Spacing (ft.)	trees / acre
4 x 4	2,720
4½ x 4½	2,150
5 x 5	1,740
5 ½ x 5½	1,440
6 x 6	1,210
7 x 7	890





MICHIGAN STATE UNIVERSITY Extension

### Vegetation management

- Mechanical
- Cover crops
- Chemical
  - Pre-emergent
  - Post-emergent




---

MICHIGAN STATE UNIVERSITY Extension





---

MICHIGAN STATE UNIVERSITY Extension




---

MICHIGAN STATE UNIVERSITY Extension




---

MICHIGAN STATE UNIVERSITY Extension

### Nutrition management

Growth rate  
Color and quality

Macronutrients  
N, P, K

Micronutrients  
Manganese, Iron

Problems often related to soil pH




---

MICHIGAN STATE UNIVERSITY Extension

### Fertilization

- Nitrogen
  - Usually added annually
    - 0.5 to 2 oz. per tree
- P, K based on soil test
- Other elements usually based on deficiency or foliar sampling

---



MICHIGAN STATE UNIVERSITY Extension

### Pest management

- Insects
- Diseases
- Mammals

---

MICHIGAN STATE UNIVERSITY Extension

- Shoot boring insects
- Pales weevil

---

MICHIGAN STATE UNIVERSITY Extension

- Gall-forming insects
- Cooley's gall adelgid

---

MICHIGAN STATE UNIVERSITY Extension

- Needle-feeding - Spruce spider mites

---



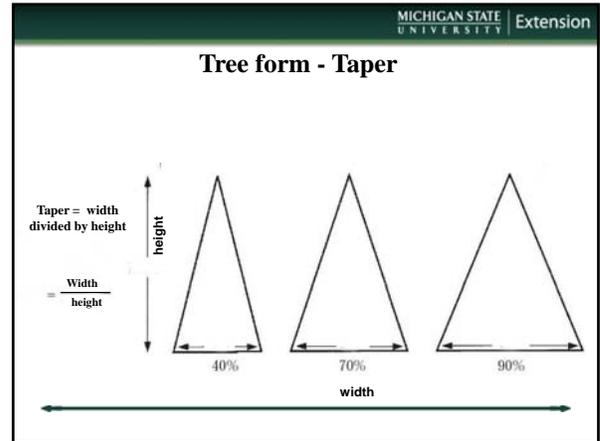
MICHIGAN STATE UNIVERSITY Extension

### Integrated pest management

- Scouting
- Minimize pesticide use
- Use biocontrols
- Identify economic injury thresholds

---





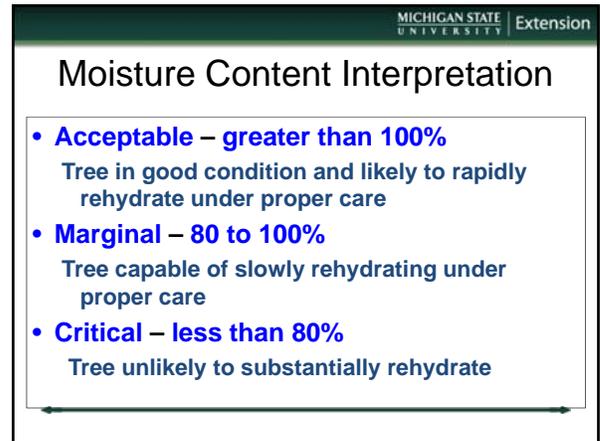
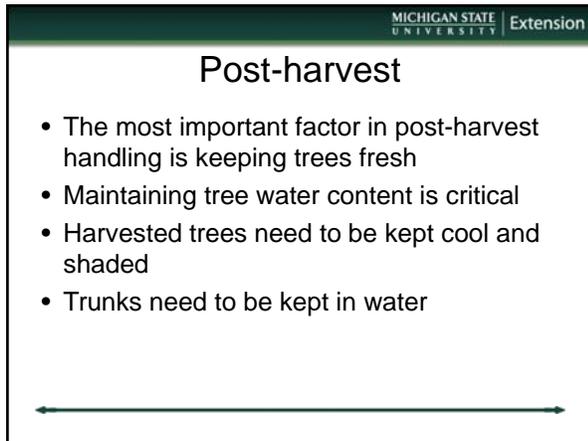
MICHIGAN STATE UNIVERSITY Extension

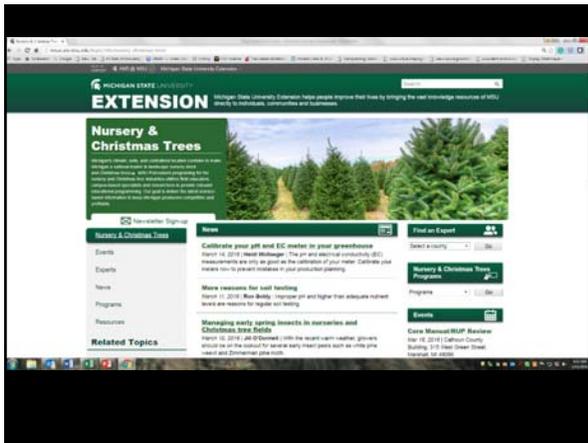
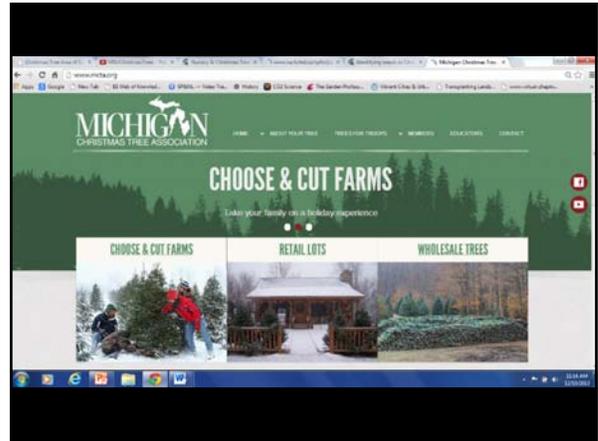
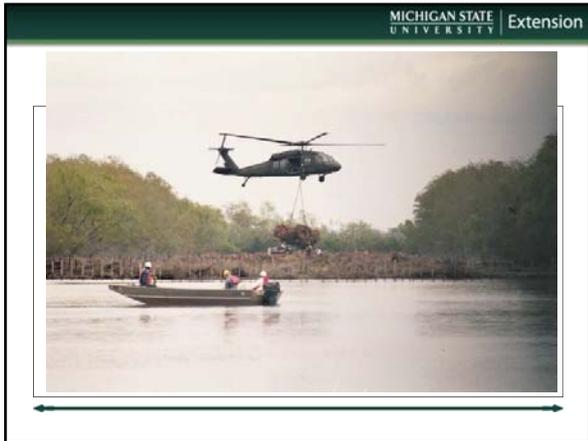
Harvest and post-harvest

Harvest methods vary with type of production

- Choose and cut
  - Need to provide customer with easy method to harvest trees
- Wholesale
  - Growers try to minimize number of times tree is handled







**Productions costs**

- Overhead costs (fixed costs)
  - Land (taxes, interest, rent), insurance
- Variable costs
  - Planting stock, fertilizer, pest management,
- Labor
- Equipment
  - Initial costs, repair costs, insurance, interest

**Table 8a. Fraser fir Christmas tree management costs (other than those associated with shearing and harvesting), eight- to 10-year rotations.**

Cost Item	1997 survey		2006 survey				Rotation length in years		
	Average cost per year or per treatment		WS		CC		8	9	10
	(/per acre)	(/per tree)	(/per acre)	(/per tree)	(/per acre)	(/per tree)	(Years in which cost is incurred)		
Land value	\$923.00	\$0.75	\$2,777.78	\$2.30	\$2,863.00	\$2.38	1-8	1-9	1-10
Land rental	\$52.22	\$0.04	\$78.00	\$0.06	N/A	N/A	1-8	1-9	1-10
Site preparation	\$94.38	\$0.08	\$153.75	\$0.13	\$76.00	\$0.06	1	1	1
Planting stock (2-6)	\$586.56	\$0.48	\$748.67	\$0.62	\$927.00	\$0.77	1	1	1
Planting	\$202.11	\$0.17	\$192.73	\$0.16	\$205.00	\$0.17	1	1	1
Replanting	\$42.48	\$0.29	\$107.47	\$0.51	\$67.00	\$0.27	2	2	2
Land taxes	\$18.98	\$0.02	\$25.30	\$0.02	\$43.00	\$0.04	1-8	1-9	1-10
Overhead	\$122.29	\$0.10	\$240.00	\$0.18	\$295.00	\$0.22	1-8	1-9	1-10
Mowing	\$15.22	\$0.01	\$50.03	\$0.04	\$72.36	\$0.06	1-8	1-9	1-10
Chemical weed control	\$27.72	\$0.02	\$39.92	\$0.03	\$54.58	\$0.05	1-5	1-6	1-7
Fertilizer	\$30.00	\$0.02	\$36.10	\$0.03	\$36.10	\$0.03	1-8	1-9	1-10
Basal pruning	\$30.00	\$0.02	\$206.42	\$0.17	\$100.00	\$0.08	3	3	3
Irrigation	N/A	N/A	\$115.00	\$0.10	\$120.00	\$0.10	3	3	3
Insect control	\$19.58	\$0.02	\$37.05	\$0.03	60.00	ND	3-8	3-9	3-10
Disease control	\$2.38	\$0.00	\$23.14	\$0.02	ND	ND	4-8	4-9	4-10
Cleanup after harvest	\$84.17	\$0.07	\$123.85	\$0.10	\$103.00	\$0.09	8	9	10

WS = Wholesale  
CC = Christmas Tree Production, 2006 - E2999

**Table 8b. Fraser fir Christmas tree management costs associated with shearing and harvesting, eight- to 10-year rotations.**

Cost item and years in which cost is incurred

	Average cost per tree			Rotation length in years and cost per acre							
	1997 survey		2006 survey		2006 survey		2006 survey		2006 survey		
	WS	CC	WS	CC	WS	CC	WS	CC	WS	CC	
<b>Shearing</b>											
3rd and 4th years	\$0.05	\$0.13	\$0.22	\$137	\$258	\$137	\$258	\$137	\$258		
5th and 6th years	0.08	0.16	0.26	\$168	\$304	\$168	\$304	\$168	\$304		
7th year	0.11	0.18	0.28	\$170	\$295	\$170	\$295	\$170	\$295		
8th year	0.13	0.20	0.32	\$126	\$225	\$147	\$282	\$188	\$300		
9th year	0.15	0.21	0.37			\$66	\$130	\$144	\$282		
10th year	0.17	0.21	0.37					\$55	\$108		
<b>Cutting</b>											
6th year	0.20	0.41	ND	43		43		43			
7th year	0.20	0.41	ND	129		86		43			
8th year	0.20	0.41	ND	259		216		65			
9th year	0.20	0.41	ND			86		173			
10th year	0.20	0.41	ND					108			
<b>Cleaning and baling</b>											
6th year	0.58	0.61	0.5	64	59	64	59	64	59		
7th year	0.58	0.61	0.5	193	176	128	117	64	59		
8th year	0.58	0.61	0.5	385	351	321	293	96	88		
9th year	0.58	0.61	0.5			128	117	257	234		
10th year	0.58	0.61	0.5					160	146		
<b>Healing and loading</b>											
6th year	0.83	0.96	ND	101	ND	101	ND	112	ND		
7th year	0.83	0.96	ND	303	ND	202	ND	112	ND		
8th year	0.83	0.96	ND	606	ND	505	ND	169	ND		
9th year	0.83	0.96	ND			202	ND	450	ND		
10th year	0.83	0.96	ND					281	ND		

WS = Wholesale CC = Choose-and-cut ND = No data.

**Additional costs**

- Fraser fir
  - Removing cones
    - .85 - 1.00 +/-tree




**Table 8c. Average number of Fraser fir trees sold per acre for each production period and revenues received at \$27.39 and \$47 for wholesale and choose-and-cut.**

Year of sale	8-year rotation			9-year rotation			10-year rotation		
	1997		2006	1997		2006	1997		2006
	WS	CC	CC	WS	CC	WS	CC	WS	CC
6	141	105	117				68	210	234
	\$3,181	\$2,876	\$5,499						
7	563	316	351	260	210	234	\$1,534	\$5,752	\$10,998
	\$12,701	\$8,655	\$16,497	\$5,866	\$5,752	\$10,998			
8	352	631	703	422	526	586	329	210	234
	\$7,941	\$17,283	\$33,041	\$9,520	\$14,407	\$27,542	\$7,422	\$5,752	\$10,998
9				374	316	351	363	422	469
				\$8,437	\$8,655	\$16,497	\$8,189	\$11,559	\$22,043
10							296	210	234
							\$6,678	\$5,752	\$10,998
Trees sold	1,056	1,052	1,171	1,056	1,052	1,171	1,056	1,052	1,171
Gross revenue	\$23,823	\$28,814	\$55,037	\$23,823	\$28,814	\$55,037	\$23,823	\$28,814	\$55,037

WS = Wholesale CC = Choose-and-cut ND = No data.

**Table 4. Basic data for Scotch pine, Douglas fir and Fraser fir Christmas tree plantations.**

	Scotch pine			Douglas fir			Fraser fir		
	1997 survey		2006 survey	1997 survey		2006 survey	1997 survey		2006 survey
	WS	CC	CC	WS	CC	WS	CC	WS	CC
Production period (years)	8 to 10	8 to 10	9 to 10	10 to 13	10 to 13	11 to 13	8 to 10	8 to 10	9 to 10
Average land value per acre	991	2,600	3,000	1,825	2,812	ND	923	2,777	2,883
Average number of trees planted per acre	1,222	1,210	1,210	1,222	1,210	1,210	1,222	1,320	1,320
Average number of trees sold per acre	610	854	807	808	963	847	1,056	1,052	1,171
Average selling price per 7- to 9-foot tree	\$9.40	\$14.13	\$15.00	\$14.00	\$23.91	\$34.00	\$22.56	\$27.39	\$47.00

WS = Wholesale CC = Choose-and-cut ND = No data.

**Table 10. Internal rate of return earned by three species of Christmas trees.**

IRR earned (percent before tax)

Rotation (years)	Scotch pine			Douglas fir			Fraser fir		
	1997		2006	1997		2006	1997		2006
	WS	CC	CC	WS	CC	WS	CC	WS	CC
8	16	21.6	24.3				48	34.5	50.9
9	12	21.2	23.6				59	50.3	41.9
10	9	21.0	23.0	16	25.7	ND	33	28.3	35.6
11				13	25.6	ND			
12				7	24.6	ND			
13				8	23.8	ND			

WS = Wholesale CC = Choose-and-cut ND = No data.

**Marketing Christmas Trees**  
*Playing to Win*



Jill O'Donnell  
MSU Extension



MICHIGAN STATE UNIVERSITY Extension

## Wholesale



- Can be far from population
- Market large # of trees at one time
- Lower risk – trees sold before cut

---

MICHIGAN STATE UNIVERSITY Extension

## Wholesale



- You need to find buyers
- On stump vs. cut
- Labor
- Lower prices

---

MICHIGAN STATE UNIVERSITY Extension

## Retail




---

MICHIGAN STATE UNIVERSITY Extension

## Retail




---

MICHIGAN STATE UNIVERSITY Extension

## Retail

- Higher risk - trees cut before they are sold
- Choosing a Site
  - Location, rent, may lose site
- Permits





---

MICHIGAN STATE UNIVERSITY Extension

## Retail

- Costs of retailing
  - Shipping, tent, display, lighting, help, security etc.
  - Parking
  - Labor
  - Disposing of unsold trees






---

MICHIGAN STATE UNIVERSITY Extension

### Choose and Cut



---

MICHIGAN STATE UNIVERSITY Extension

### Choose and Cut Business

- Choose and cut operations account for **25 – 30 % of natural tree sales.**



---

MICHIGAN STATE UNIVERSITY Extension

### Several contributing reasons.....

- perception by some of higher quality, better value and wider selection
- tradition and experience involved - e.g. trip “country”, family togetherness, photo opportunities, related amenities and experiences
- buying local

---

MICHIGAN STATE UNIVERSITY Extension

### Focus is in three primary areas....

1. Product quality
2. Customer service and convenience
3. Enjoyable and interesting experience



---

MICHIGAN STATE UNIVERSITY Extension

### Considerations...

- Lower risk
- Distance to consumers
- Access to plantation
  - All weather



---

MICHIGAN STATE UNIVERSITY Extension

### Considerations...

- Less tree handling
- Local competition
- Insurance

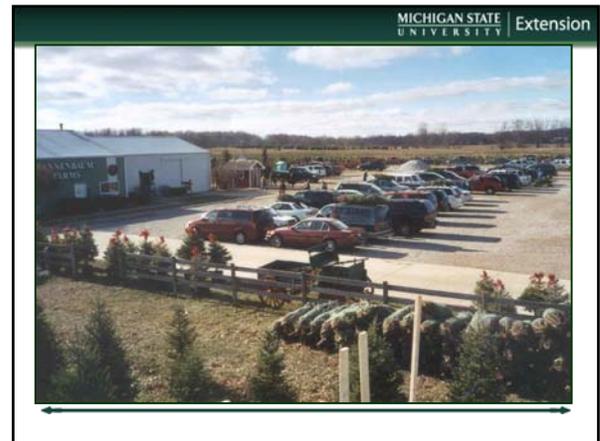


---

MICHIGAN STATE UNIVERSITY Extension



- Pre-cut trees
- Parking
- Signs
- Equipment
- Advertisement



MICHIGAN STATE UNIVERSITY Extension





MICHIGAN STATE UNIVERSITY Extension

Conclusions...

- Product



← →

MICHIGAN STATE UNIVERSITY Extension

Conclusions...

- Market
  - Know Yourself
  - Customers

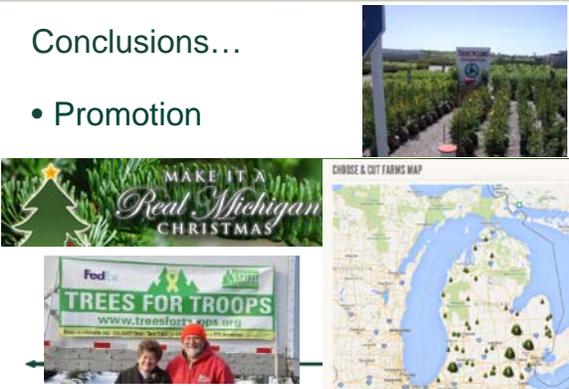


← →

MICHIGAN STATE UNIVERSITY Extension

Conclusions...

- Promotion



← →

MICHIGAN STATE UNIVERSITY Extension

Conclusions...

- Price



← →

MICHIGAN STATE UNIVERSITY Extension

*“The bitterness of low quality remains long after the sweetness of low price is forgotten.”*

Benjamin Franklin

← →

MICHIGAN STATE UNIVERSITY Extension

You don't make money growing Christmas trees, you make money selling Christmas trees!



← →

MICHIGAN STATE UNIVERSITY Extension



You don't make money growing Christmas trees, you make money **marketing** Christmas trees!



←

MICHIGAN STATE UNIVERSITY Extension

## Marketing Christmas Trees *Playing to Win*



Photo credits:

- Kluck Nursery- Saginaw, MI
- Mutch's Hidden Pines, Lapeer, MI
- Tannenbaum Farms, Mason MI
- Marsha Gray, Michigan Christmas Tree Association
- Jill O'Donnell. MSU Extension

←