



## **Grower Certification Guidelines for SERF**

Socially and Environmentally  
Responsible Farm (SERF)  
Sustainability Plan

# **Developing a Sustainability Plan for Your Christmas Tree Farm**

**[SERFcertified.org](http://SERFcertified.org)**



# Developed by



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Reference information: Landgren, Chal. July, 2012. [Developing a Sustainability Plan for Your Christmas Tree Farm.](#)  
Available at the website: [SERFcertified.org](http://SERFcertified.org).

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# Introduction

## *Developing a Sustainability Plan for Your Christmas Tree Farm*

### **Grower Certification Guidelines for SERF**

#### **Background**

This publication serves as guide for growers preparing a Socially and Environmentally Responsible Farm (SERF) Sustainability Plan.

Briefly, the SERF program and attendant plan guides, conformance goals, inspection process and so on has been a work in process, that began around 2007.

An ODA/USDA block grant in 2009-2012, provided partial funding to move the effort forward. The block grant assisted in completing the following—

- Formation of a steering committee comprised of a broad range of interests and backgrounds. This group met over a 5 month period to vet and develop the current Conformance Goals and Indicators and the existing structure of the SERF program.
- Development and production of the SERF plan guidelines (this document) along with a first set of classes designed to assist growers in plan preparation.
- Development of SERF Marketing items (brochure, tree tags and website)
- Development and production of Christmas Tree Diseases, Pests and Other Disorders by Luisa Santamaria and Chal Landgren, 2012. English and Spanish available at the SERF website and as listed in Appendix 8.

This effort continues to evolve and change. At a basic level, SERF certification requires a voluntary effort from growers wishing to be acknowledged for their sustainability efforts. The Christmas tree grower then develops his/her SERF plan while adjusting and monitoring farm practices to conform with SERF goals. After completing the SERF Sustainability Plan, an inspection by a State Agriculture employee is conducted. If the Sustainability Plan and the Christmas tree farm “pass” the inspection and are “certified” by a review committee—the farm is SERF Certified. Currently, certification is maintained and facilitated by the PNW Christmas Tree Growers Association.

The purpose of this document is to assist growers in developing a SERF Sustainability Plan. Included are the conformance goals, a plan example, form examples and lists of additional resources that might assist in preparing a plan. These resource lists are not exhaustive nor are the forms provided the “official” form(s) you must complete. They are provided only as examples. In the end, the plan needs to reflect the grower/applicants personal efforts and management on the farm.

#### **The publication is divided into four parts as follows:**

- Part 1: Outlines the basic content of each section of the plan and the general plan requirements.
- Part 2: Includes a “mock” plan to assist in preparing your own. Included are both examples and “tips” for individual plan preparation. Suggestions are shown in italics.
- Part 3: The Appendices to the “mock” SERF plan contains resources, examples and forms that may be adapted for use. Blank forms may be downloaded from the SERF website.
- Part 4: Contains the summary document used by inspectors showing the point allocation for each plan element and the Conformance Indicators inspectors will be looking for.

Additional information is available at the SERF website: **SERFcertified.org**.

This includes the application forms to request an inspection, blank forms and added reference materials

# Part 1

## *Plan Requirements and Contents*

### **The Requirement**

A certified farm supports a balanced economic, social and environmentally sustainable Christmas tree operation. Each farm will develop a **Sustainability Plan** detailing activities in the areas listed below. The farm must demonstrate via an inspection program that the plan is being used, updated and followed in all phases of operations. Inspections will include all farm personnel (employees, family, contractors) involved in operating the tree farm.

### **The Principal Plan Sections**

#### **1. Cover Page(s)**

- a. Farm Environmental Policy Goal(s)
- b. List of who has overall responsibility for oversight and implementation of the Sustainability Plan
- c. Basic Farm Information (Also used in the application)

#### **2. Biodiversity**

- a. Maps/Photos
- b. Protection of natural features, waterways, habitat and promote bio-diversity on the farm
- c. Evaluation of new production areas
- d. Workers understanding of bio-diversity goals
- e. Familiarization with local wildlife (especially those threatened and/or endangered)

#### **3. Protection of Soil and Water Resources**

- a. Soil maps and records of monitoring
- b. Soil erosion prevention
- c. Water resources identified and impacts assessed
- d. Protective measures developed

#### **4. Integrated Pest Management (IPM)**

- a. Personnel/contractors trained in IPM Systems
- b. Farm maintains records of pesticides and fertilizers that include target pest, time, location and other pertinent details
- c. Evidence of utilization of IPM in decisions
- d. Employees who handle or apply pesticides are trained in accordance of farm IPM program
- e. Chemical products and fertilizers are stored and handled in compliance with applicable laws

#### **5. Health and Safety**

- a. Person(s) designated and trained to oversee farm health and safety
- b. Employees/contractors adequately trained for activities performed
- c. Health and safety risks on the farm are identified and training provided
- d. Any violations have been corrected
- e. First-aid/CPR certifications are present and up-to-date
- f. First aid equipment is readily available and appropriate for type of work

#### **6. Community and Consumer Relations**

- a. Farm involved in community and industry organizations concerned with wise use/management of natural resources
- b. Farm promotes sustainability education
- c. Tree recycling information provided to customers/community
- d. Measures taken to promote benefits of farm grown Christmas trees



# Part 2

## ***ABC Tree Farm Plan—An Example***

### **SERF SUSTAINABILITY PLAN FOR ABC CHRISTMAS TREE FARM**

#### **ABC TREE FARM ENVIRONMENTAL POLICY**

We are committed to promoting and providing a culture of environmental sustainability and responsibility. We are committed to providing our workers with a safe environment to work in and our clients with a top quality farm grown Christmas tree.

#### **Person(s) Responsible for Environmental Sustainability:**

John Doe, the general manager of ABC Tree Farm is responsible for overseeing and implementation of this plan.

Signed/Date: *John Doe 8/2011*

Jane Smith is the farm Health and Safety Manager responsible for employees and contractors.

Signed/Date: *Jane Smith 8/2011*

Reviews:

This plan was prepared on 1/1/2011. Plan will be reviewed and updated annually by John Doe. Next inspection 1/1/13.

## Farm Information Summary

Farm/Company:	
Name of Applicant:	
Address (mail):	
Phone (H):	Cell:
E-mail:	

## Total Farm Ownership Listing

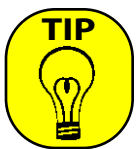
Field Name or Map #	Parcel Address or Legal Description	Acres in Christmas tree Production	Acres Total	Rented (R) or Owned (O)	Included in SERF (Y), No (N), Other (specify)
ABC Tree Farm	32481 Church Rd. Warren OR 97053 (note--there are no residences on farm)	5	7	O	Y



## Biodiversity on ABC Farm



The ABC Christmas tree farm is outlined in blue. There are 5 acres in Christmas tree production and 2 acres in woodland (7 acres total). Farm roads are graveled, woodland access is on dirt road, with vehicle access only in the summer. The plantings and farm are currently divided into 7 units based on species planted, planting year and use. (see appendix 1)

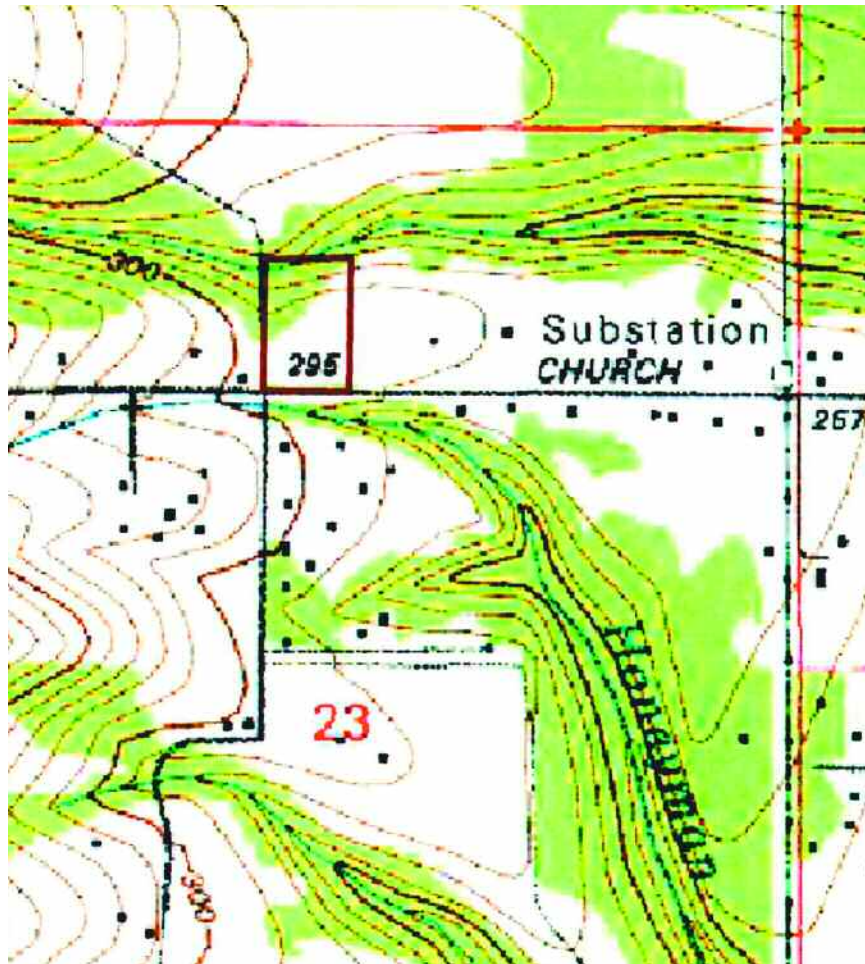


**PHOTO AND MAPS**—Every Christmas tree farm should have a well-drawn base map and aerial photo(s). They are essential. Outline your roads, any water areas or streams, landings, natural areas and plantation locations. Check out Google Earth, MSR maps and other sites to get free aerial views. (see appendix 2 for listings)

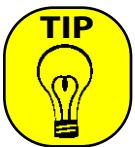
*A good base map can be used in many ways. You can keep notes of your herbicide treatments, sale areas, what was planted where and so on. Also helpful is having some type of semi-permanent in-ground markers with dates and identify information of different seed lots and plantation features. This is a great way to end guessing about what was planted when. Perhaps you will find a seedling source you really like (or one you want to avoid). Either way the record will help you in future decisions and recall past treatments).*

A US Geological Survey type map (7.5 min topo segment Page 9) is useful in showing the farm in relation to roads, water sources, and could help show areas that might be steep and prone to soil loss and so on.





ABC farm is in the rectangle numbered 295. There is a small creek in the north and Honeyman Creek is across the road to the south. The cultivated part of the farm is fairly flat. The woodland section (Appendix 1, Area 7) contains some 45% slopes, prone to slumping



#### **EVALUATION OF NEW PRODUCTION AREAS**

New production areas will refer to areas that have been added to your farm after the initial inspections. If you are preparing your plan for the first time, you likely will not have any new areas. If your farm does not have new areas, full credit is given for this item in the inspection.

## Biodiversity Goals for ABC Farm

### Workers understanding of biodiversity goals

On January 1, 2011, John Doe and farm worker Jane Smith, walked the farm looking at sensitive areas near the stream in the northwest section of the farm. Invasive weeds were identified. Of note here is the ivy planted by the neighbors grandfather along the E boundary for erosion control along the road cut. Ivy now grows 30 feet up boarder trees and has killed many mature trees.

### Familiarization with local wildlife species.

*(especially threatened and/or endangered)*

#### Mammals

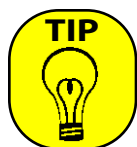
- The list of mammals observed on the farm are: Coyote, black tailed deer, mice, elk, mole, ground squirrel.....
- A list of species noted in Columbia County is in Appendix 3

#### Bird Listing

- None of the employees or owners are good at bird identification. A neighbor in the Audubon Society was asked to provide a bird census in May and October. These are listed below. (see Appendix 3 for a list of birds found in Columbia county)
- Brewers blackbird, American crows, N. flicker, red-tailed hawk, house sparrow, Spotted Towhee, barn/song/house swallow.

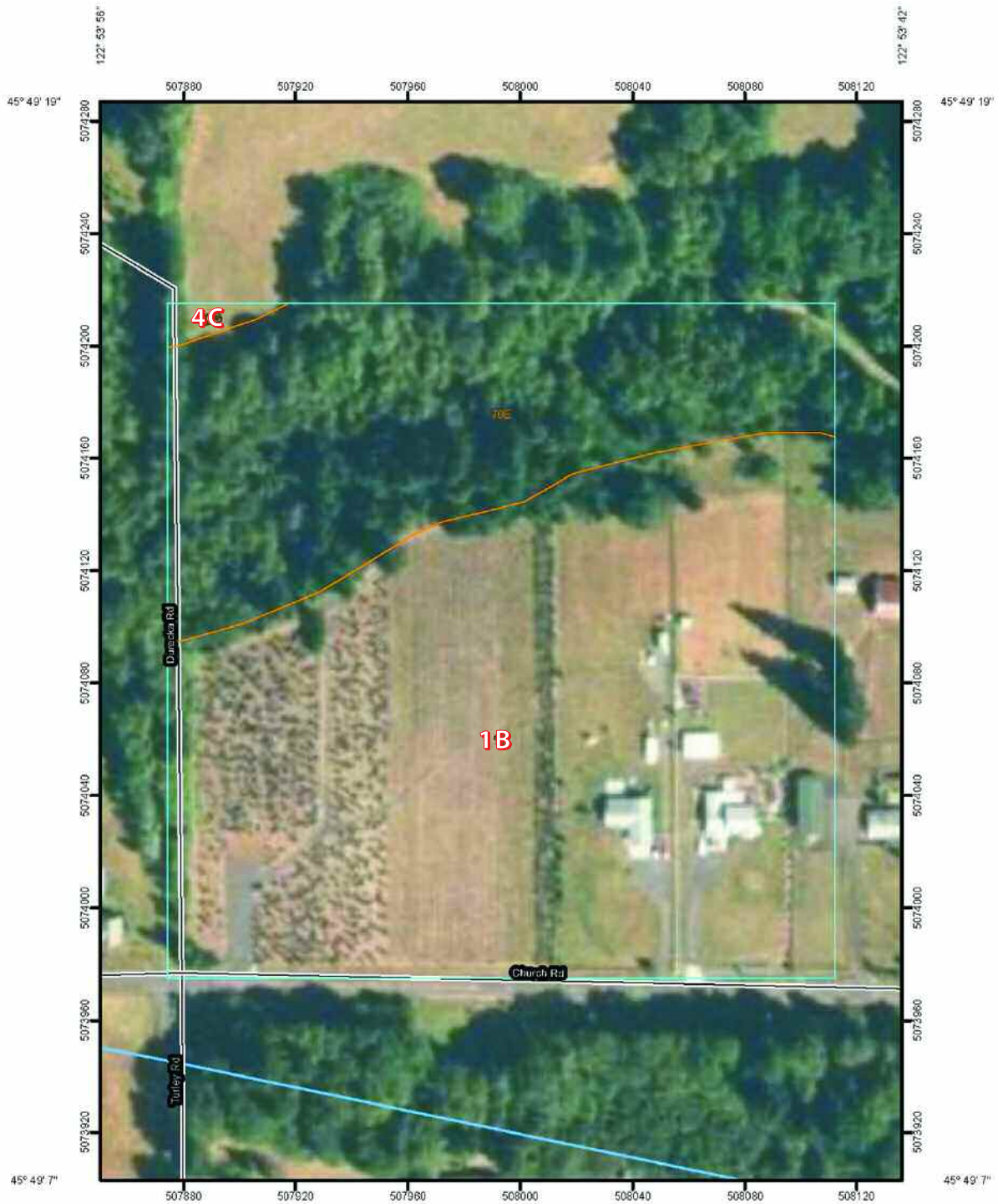
### ABC Tree Farm Vegetation listing

- Red alder, Maple (big leaf and vine), Douglas-fir, cedar, huckleberry, Oregon grape, sorrel, etc...
- List of Oregon T and E Species (see appendix 4)

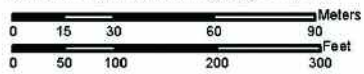


There are a number of resources available to assist with completing this section. Some of the web related resources are listed in appendix 8. In addition to these, you state fish and wildlife departments are helpful, knowledgeable neighbors, local conservation group chapters and in some cases counties may have personnel in the “parks” or “planning” departments who can provide some local information.

# Protection of Soil and Water Resources ABC Tree Farm



Map Scale: 1:1,830 if printed on A size (8.5" x 11") sheet.








































# Soil Map for ABC Tree Farm

The map on page 11 shows the soils map for ABC farm. The Christmas tree production area of the farm is in soil type 1B (Aloha Silt Loam) at a slope of 3-8%.

The Woodland portion is soil type 70E. Portions are quite steep near the stream (60% slopes). Average farm precipitation is 50 in./yr.

## MAP LEGEND

 Area of Interest (AOI)	 Very Stony Spot
<b>Soils</b>	 Wet Spot
 Soil Map Units	 Other
<b>Special Point Features</b>	<b>Special Line Features</b>
 Blowout	 Gully
 Borrow Pit	 Short Steep Slope
 Clay Spot	 Other
 Closed Depression	<b>Political Features</b>
 Gravel Pit	 Cities
 Gravelly Spot	<b>Water Features</b>
 Landfill	 Oceans
 Lava Flow	 Streams and Canals
 Marsh or swamp	<b>Transportation</b>
 Mine or Quarry	 Rails
 Miscellaneous Water	 Interstate Highways
 Perennial Water	 US Routes
 Rock Outcrop	 Major Roads
 Saline Spot	 Local Roads
 Sandy Spot	
 Severely Eroded Spot	
 Sinkhole	
 Slide or Slip	
 Sodic Spot	
 Spoil Area	
 Stony Spot	

## MAP INFORMATION

Map Scale: 1:1,830 if printed on A size (8.5" x 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:20,000.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service  
 Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>  
 Coordinate System: UTM Zone 10N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Columbia County, Oregon  
 Survey Area Data: Version 8, Feb 8, 2010

Date(s) aerial images were photographed: 8/4/2005

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Columbia County, Oregon (OR009)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
1B	Aloha silt loam, 3 to 8 percent slopes	9.7	68.3%
40C	Quatama silt loam, 8 to 15 percent slopes	0.1	0.7%
70E	Xerochrepts, steep	4.4	31.0%
<b>Totals for Area of Interest</b>		<b>14.1</b>	<b>100.0%</b>



## Soil Considerations

**Aloha Silt Loam** is a deep but somewhat poorly drained soil. In the lower portions of the site (near Church Rd.), water tended to pool beneath the surface in winter making it difficult for noble fir. This "front" portion on the field has drain pipe (4 in size) installed every 30 ft. on the contour (1981). The backside slopes to the woodland and is well drained.

The surface layer ranges from 7-12 inches in depth. Few rocks are found. The subsoil goes to a depth of 60 inches with mottled yellow brown sandy loam. Soil is capability subclass llw

Standard septic systems drain adequately.

The woodland soil (70E- Xerochrept) is steep, benched and ends at a small creek on the property NE corner. There have been two minor slumps on this soil even with 100% forested cover (including invasive ivy). Both slides/slumps followed heavy winter rain events. Some of the trees are bent at the base. It is important to maintain cover on these slopes. Soil is capability class VIe

## Monitoring Records

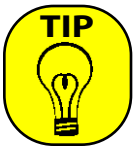
Following the last two major storms (12/12/2010 and 11/20/2010) Joe Doe monitored the ditches along Church Rd. for blockages and flooding. None found. Also, water bars were cleared of debris and opened along the dirt road in the woodland section of the tree farm. Culverts were monitored on the neighbors to the NE of the farm. The pipe diameter is too small and may need replacement.

Monitoring occurs following (or during) major storms

## Soil Erosion Prevention

The production areas are flat or nearly so and not prone to erosion. For the benefit of U-Cut customers, cover crops were installed on 10% of the Christmas tree field using "Chewings" hard fescue.

Vegetation near the road ditches on Church road is left unsprayed (15 ft width) for erosion control. Within the ditch itself, the vegetation tends to trap debris and may need clearing until debris clears out, otherwise the ditch bank will erode to the road.



On farms where erosion is an issue, having some sort of record keeping and monitoring system will be needed by the inspector (see appendix 10). Your record should include the date of the inspection, location, any actions performed and follow-up information. Your plan may rely on records kept in the farm truck or office for the inspector to review.

Be mindful that the Soil and Water Resource Conformance Goals are all high, 5 point items. So, monitoring erosion, minimizing soil loss, maintaining water quality and mitigating any potential negative impacts to water and soil will be highly important inspection items for your Sustainability Plan.

Inspectors will likely want to see and inspect areas where erosion or water quality might be a concern. This will include areas where streams cross production areas, steep slopes, high angle roads and run-off areas, just to name a few.

Inspectors will understand that growers can not control the weather and there might be signs of erosion. However, growers will need to present plans and actions designed to monitor and control soil erosion and or degradation of water quality on their farms in order to be SERF certified.



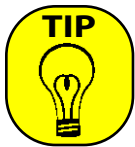
## Water Resources Assessment — ABC Farm

The principal water feature on ABC Farm is the small (Class 4) year-round stream to the NE of the farm. The stream traverses the property for around 400 feet. The largest potential impact could be a plugged culvert on the neighbors property to the east. A road cut made nearly 70 years ago has two culverts, which by today's standards would be undersized. There was some danger of a wash-out in the 1996 floods. Replacement would require major road construction as the culvert is beneath 40 vertical feet of fill.

### Protective Measures Developed

The principal protective measures on the stream include buffers and no harvesting along the steep stream banks (nearly all of our 2 acres). Oregon Department of Forestry Forest Practices rules also preclude cutting within 25 feet of the stream.

The neighbor installed a debris guard following the 1996 flooding on his property. This needs periodic monitoring/re-cleaning.



On farms where streams cross or boarder production areas, practices that minimize inputs of pesticides, fertilizers or sediment into the water will be inspected. Maintaining vegetated buffer areas and water diversions will help minimize these potential inputs. Likewise having soil and foliar testing data from the trees should support the need for field fertilizer applications (see appendix 9).

SERF certification is not intended to preclude the use of pesticides or fertilizer that are necessary to produce a quality tree crop. Rather, certification is intended to support the balanced use of these tools while protecting public resources like water and the long term health of basic resources such as your soil.

# Integrated Pest Management for ABC Farm

## Personnel/Contractors trained in IPM Systems

John Doe is responsible for the farm IPM program. His training records are listed in Appendix 5.

The general duties of the IPM coordinator on this farm are:

- Communicate with employees and contractors on ABC farm regarding the importance of the IPM program.
- Anyone performing pest control activities should have the necessary training, appropriate PPE and license needed for the job.
- Keep pesticide labels and MSDS sheets up-to-date and available.
- Maintain monitoring records and evaluate/document effectiveness of treatments.
- Refine Pest Threshold Guidelines with additional knowledge and updated training
- Ensure that spraying equipment is functioning properly and calibration steps are current and proper for the material applied

***Farm maintains records of pesticides and fertilizers that include target pest, date, location and other pertinent details.***

See appendix 6 for detail

## Evidence of utilization of IPM in decisions

Appendix 7 lists some of the common spray thresholds by tree species, tree age and pest used on the farm.



Where possible, document any policy statements within you plan records. For example, if your plan says something like- "No insecticide applications for midge until 10+ females are spotted or trapped". Your IPM scouting records should have a record of midge counts.

Inspectors typically would like to see a pesticide application history going 3-5 years back.

There is a broad listing of additional IPM websites and resources in appendix 8

## Decisions to spray follow the guidelines listed below:

- Every pesticide application is made only after the field has been scouted and the pest clearly identified.
- Many "problems" will not have a "fix" that will be solved with a pesticide application
- Many "problems" can be anticipated and alleviated by considering the site-tree-pest interactions prior to planting. Select the best tree for each site.
- When needed, pesticides that are least disruptive to natural controls will be considered first
- Cost effectiveness, likely results, market requirements and IPM principles will be balanced in the decision process.
- Consideration of beneficial organisms will all be part of the final control decisions.
- Broadcast sprays of non-specific pesticides are considered as a last solution, after other options have proven ineffective or prohibitively expensive.

## Integrated Pest Management Section (continued)

### **Employees who handle or apply pesticides are trained in accordance of farm IPM program**

The training records are included in Appendix 5.

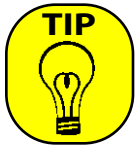
On the rare occasion we have contractors conduct the spraying, after John Doe of ABC has made the decision that a spray application is needed.

*The contractor, Spray Company, XYZ, needs to document, proper training of their supervisors and knowledge of calibration.*

### **Chemical products and fertilizers are stored and handled in compliance with applicable laws**

The storage shed is locked. Where possible only quantities of pesticides needed for one year are purchased. Storage of both liquid and dry products is made with double bagging. The chemical is stored in a 5-gallon bucket or plastic container sized to capture any leaking packaging. The pesticide is then stored in a garbage bag secured with a cable tie. Product information is visible.

*A listing of additional IPM website resources are provided in Appendix 8.*



If contractors are used for pesticide applications, the farm IPM manager is still responsible for the control decision(s), record keeping and reentry postings

## Health and Safety on ABC Farm

### **Person(s) designated and trained to oversee farm health and safety**

Jane Smith is ABC Tree Farm's Health and Safety Manager.

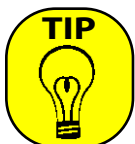
### **Employees/Contractors adequately trained for activities performed**

Shearing Contractor, XYZ, has a minimum of one person with a first aid card working with the crew at all times. A minimum of two rows of trees separate each crew member while knife shearing. One crew member is allergic to wasp/bee stings. An epi-pen (Epinephrine auto-inject) is available in the work crew truck. Expiration Oct./20xx. Jane Smith knows how to administer, as does Manuel Paz.

Hospital directions and emergency contact Information are included in Appendix 11 and at the shop.

### **Health and Safety risks on the farm are identified and training provided**

MSDS sheets and Pesticide Labels are stored in the second floor break room in the second drawer of the desk in a binder.



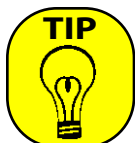
If you hold a safety meeting keep meeting notes or an agenda as a record. Have employees initial or sign for training received.

## Health and Safety Section (continued)

### For all workers on ABC Farm, the following Health and Safety procedures will be followed:

- An overview of the requirements in the Hazard Communication rules for Employees will be given to each person.
- Explain steps taken to reduce risk from exposure to chemicals and to avoid other safety related risks encountered in performance of duties.
- Any chain saw operators will review needed safety protection—chaps, ear/eye protection and be checked out on saw maintenance and safe use procedures.
- Hearing protection available for all operations where noise protection is needed.
- Emergency procedures and contacts will be shared and reviewed with each employee.
- Tools including ladders will be checked for safety each year in February. Workers are encouraged to report unsafe equipment.
- All tractor PTO's will be shielded and brightly colored
- All baler operators will be given a safety review during harvest. Any loose clothing, rings and personal items that can catch on moving parts on loaders/bailers will be removed.
- Proper lifting and clear crew communication techniques will be covered prior to harvest.
- Any worker where a possible injury could be severe (truck loading, traffic control, moving equipment) will receive safety training/gear relevant to the task.

Farm Owners will conduct quarterly review of farm safety issues relating to upcoming work. If the number of employees warrant, safety meetings will be conducted



With items like solvents, paint thinners etc., inspectors will look for practical storage solutions and safety for workers. Products should have purchase dates, labels and secure storage.

### Any violations have been corrected

None reported

### First-aid/CPR certifications are present and up-to-date

John Doe—American Red Cross-First aid and CPR expires 1/2/2012

Jane Smith—American Heart Assoc.-Health Professional-First Aid/CPR Card #xxxx exp. 2/1/2012

### First aid equipment is readily available and appropriate for type of work.

*See appendix 11 for a listing of First Aid and Emergency Medical Services*

- First aid kit available in the tool box of farm pick-up (inc. cold packs)
- Large trauma kit is located along the west wall of tractor storage garage
- Eye wash kit on east wall shelf in tractor storage garage



Your plan should follow the conformance goals (part 4) closely. Extra words and ambiguity do not help. Your SERF plan need not duplicate existing records. A inspector may ask you to show where records are stored (computer, truck, office files) and that you can show how they are used.

## Community and Consumer Relations on ABC Farm

### Farm involved in community and industry organizations concerned with wise use/ management of natural resources

John Doe is an active member in the PNW Christmas Tree Association and OR Farm Bureau member

### Farm promotes sustainability education

See table xx below

*If you are selling directly to consumers, make sure they know about the benefits of “farm grown” trees and suggest ways to recycle the tree and how to maintain a fresh tree. For customers, make sure they know the steps you are taking to be a good steward of the land and why a farm grown tree is best.*

### Tree recycling information provided to customers/community

With every U-Cut tree, the *Re-cycle Your Tree Brochure* is offered. Typically the Cub Scouts in the area pick up trees for recycling. A list of local yard waste recycling drop off sites is posted at the entrance.

With the commercial orders, John Doe suggests the lot managers do the same.

**Table xx. List of Recycling and Sustainability efforts by farm unit.**

Unit Name/Number	Marketing Method- U-Cut (U), Wholesale (W), Contract Grown (C), Direct Retail (R), Other (specify)	Recycling Sustainability Messages
4	U	Recycling and Care info offered each customer SERF logo displayed at entrance with flyers
6	W	Buyer supplies tags with recycling message SERF info provided in contract

### Farm takes measures to educate customers and the community on the benefits of a SERF grown Christmas tree

If the farm is successfully SERF certified, the printed hang tags will include the SERF logo. Buyers will be informed of the requirements of certification and the standards that these trees have met. Display material will be available. Material will be included on the farm web site regarding the SERF program.

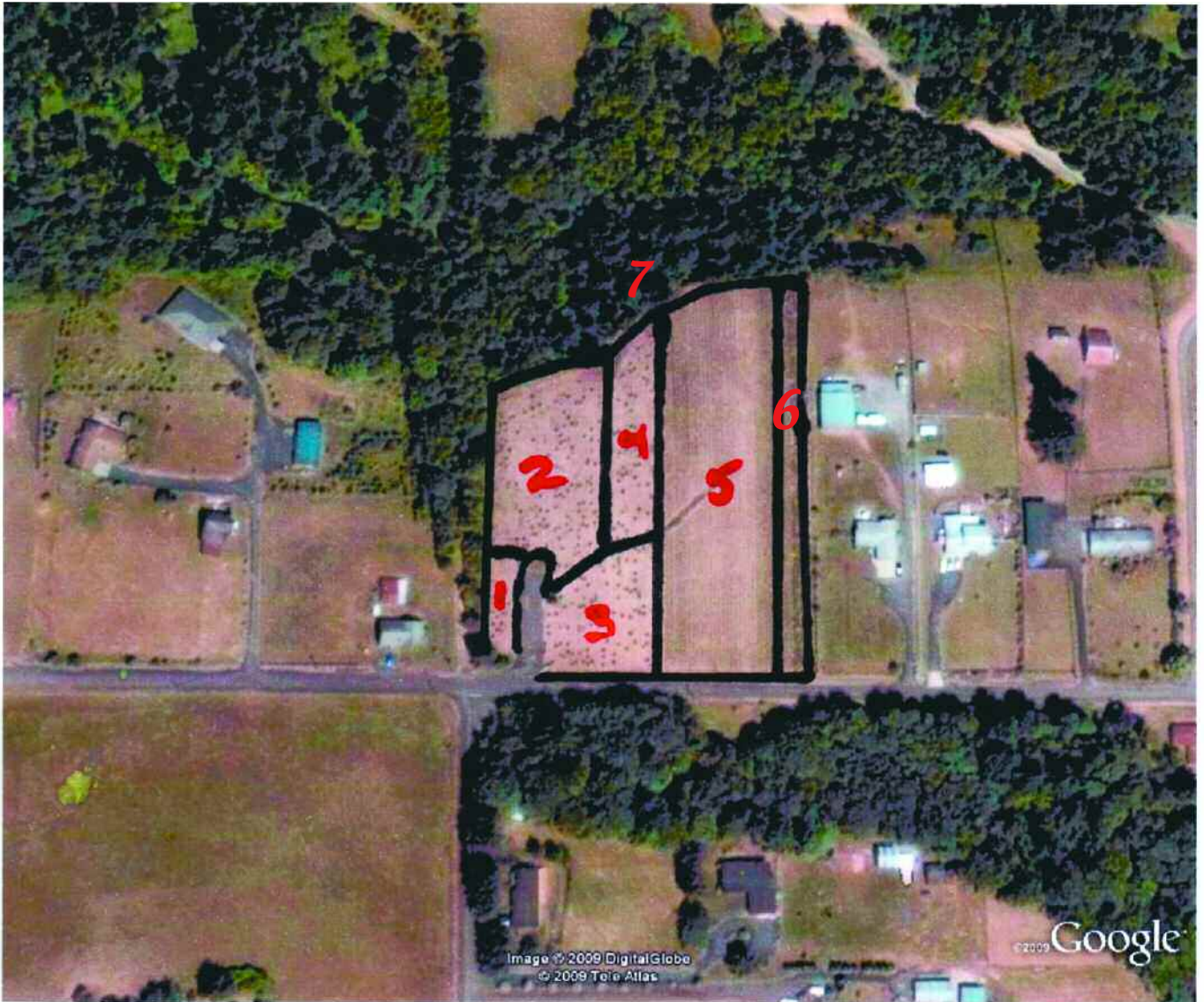


# Part 3

## *Appendices for ABC Farm Plan*

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1 Map of ABC Tree Farm Management Units .....	20-21
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# APPENDIX 1



## Map Key and Current/Future Unit Plans

Unit #	Location Size	Species Planted	Current and Future Plans
1	N of Delivery van 10 rows X 50 trees	Noble and Nordmann Table top mix	Continual replant Harvest < 5 ft. size. Maintain 3 ft. spacing in row. Move toward Turkish fir due to Annosus root rot possibility
2	Between farm gravel rds 2200 trees	Turkish fir (Bolu Kokez 2-1 BR seedling-Brooks) 2001 planting	Harvest in 2012-2014. After harvest remove stumps/site prep. (ck lime req.) fallow with cover crop
3	E of entrance between farm Rd and Church Rd 2100 trees	Nordmann fir (Weyco plugs- Tlugi source) 2002	Harvest in 2011-2012
4	E of farm Rd to older noble 30 rows X 100 trees	Noble fir (PNWCTA field run orchard mix- Kintigh Super cells) 2003	5-6 ft. trees selectively harvested in 2010. Continue harvest thru 2013. Site Prep and replant. Check foliar nutrient levels in 2011 & 2012
5	E. 1/2 of Farm (-unit 6) 2 ac,	Noble fir (mix of 053 and Danish Blue- alt. rows) 2000 and 2002 planting  Replanted/Interplanted to noble fir in 2010 (1 M trees Riley/Fanno 5X6- PNWCTA) and 2011 (2.2M seedlings Kintigh supercells PNWCTA seed Orchard run)	Harvest thru 2011 Leave cull trees unshaired for boughs.  Next harvest-ASAP
6	E fence line 8 rows X 150 trees	Mix of noble and Nordmann 2009-2010	Replant as large trees are harvested. Maintain mix of large and small trees for U-Cut customers
7	N. part of ABC farm 2 ac	W. Redcedar planted in 1981-83 Otherwise- DF, Alder, Maple, Cedar	Maintain in current cover

## APPENDIX 2

# Map Reference Sources

### 1) NRCS Soil Survey

<http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>

This site takes a little practice, but is of tremendous value. Essentially the way it works is first enter the site by hitting the “start WSS” button. Next, identify the location you are interested in by address or other means. Then use the AOI rectangle (on the upper bar) to identify the specific area of interest (AOI). Once that is selected you can click on various tabs to find information on the soils on your farm. Aerial photos and topographic maps also available.

### 2) Google Earth (Download)

<http://www.google.com/earth/index.html>

### 3) Aerial photo sources

I-10 (formerly Spencer-Gross)

<http://i10assoc.com/index.php>

WAC (Eugene)

<http://waccorp.com/>

Eagle Digital Imaging Inc. Corvallis OR. 541-754-9310

Oregon Explorer:

<http://oregonexplorer.info/willamette>

A good site to locate topographic and aerial photos of your property. List of wildlife species by county or water basin and a great portal for regional wildland information.

<http://msrmaps.com/>

## APPENDIX 3

### Columbia County Wildlife List (partial example)

<b>Mammalia</b>	<b>Reptilia</b>	<b>Amphibia</b>	<b>Aves</b>
American badger <i>Taxidea taxus</i>	Common garter snake <i>Thamnophis sirtalis</i>	Bullfrog <i>Rana catesbeiana</i>	American bittern <i>Botaurus lentiginosus</i>
American beaver <i>Castor canadensis</i>	Night snake <i>Hypsiglena torquata</i>	Cascade torrent salamander <i>Rhyacotriton cascadae</i>	American coot <i>Fulica americana</i>
American marten <i>Martes americana</i>	Northern alligator lizard <i>Elgaria coerulea</i>	Cascades frog <i>Rana cascadae</i>	American crow <i>Corvus brachyrhynchos</i>
American pika <i>Ochotona princeps</i>	Northwestern garter snake <i>Thamnophis ordinoides</i>	Clouded salamander <i>Aneides ferreus</i>	American dipper <i>Cinclus mexicanus</i>
Bairds shrew <i>Sorex bairdi</i>	Pacific pond turtle <i>Actinemys marmorata</i>	Coastal tailed frog <i>Ascaphus truei</i>	American goldfinch <i>Carduelis tristis</i>
Big brown bat <i>Eptesicus fuscus</i>	Painted turtle <i>Chrysemys picta</i>	Columbia torrent salamander <i>Rhyacotriton kezeri</i>	American kestrel <i>Falco sparverius</i>
Black bear <i>Ursus americanus</i>	Racer <i>Coluber constrictor</i>	Copes giant salamander <i>Dicamptodon copei</i>	American pipit <i>Anthus rubescens</i>
Black rat <i>Rattus rattus</i>	Ringneck snake <i>Diadophis punctatus</i>	Dunns salamander <i>Plethodon dunni</i>	American robin <i>Turdus migratorius</i>
Black-tailed deer <i>Odocoileus hemionus</i>	Rubber boa <i>Charina bottae</i>	Ensatina <i>Ensatina eschscholtzii</i>	American three-toed woodpecker <i>Picoides dorsalis</i>
Black-tailed jack rabbit <i>Lepus californicus</i>	Sagebrush lizard <i>Sceloporus graciosus</i>	Great Basin spadefoot <i>Spea intermontana</i>	Annas hummingbird <i>Calypete anna</i>



## APPENDIX 4

### Rare, T & E Species Columbia County, OR (partial)

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status	ORNHIC List
<i>Anaxyrus boreas</i>	Western toad	G4	S3		SV	4
<i>Chordeiles minor</i>	Common nighthawk	G5	S5B		SC	4
<i>Falco peregrinus anatum</i>	American peregrine falcon	G4T4	S2B		SV	2
<i>Haliaeetus leucocephalus</i>	Bald eagle	G5	S4B,S4N		LT	4
<i>Contopus cooperi</i>	Olive-sided flycatcher	G4	S3B	SOC	SV	4
<i>Dryocopus pileatus</i>	Pileated woodpecker	G5	S4		SV	4
<i>Bucephala albeola</i>	Bufflehead	G5	S2B,S5N			2
<i>Falco peregrinus tundrius</i>	Arctic peregrine falcon	G4T2	SNR		SV	2
<i>Ascaphus truei</i>	Coastal tailed frog	G4	S3	SOC	SV	4
<i>Aneides ferreus</i>	Clouded salamander	G3	S3		SV	4
<i>Rana aurora</i>	Northern red-legged frog	G4T4	S3S4	SOC	SV	4
<i>Empidonax traillii brewsteri</i>	Little willow flycatcher	G5T3T4	S3S4B		SV	4
<i>Rana pretiosa</i>	Oregon spotted frog	G2	S2	C	SC	1
<i>Branta hutchinsii leucopareia</i>	Aleutian Canada goose	G5T4	S2N			2
<i>Branta canadensis occidentalis</i>	Dusky Canada goose	G5T3	S2S3N			1

#### Global Rank/State Rank and ORNHIC List Keys

(With Birds B= breeding population, N=non breeding T indicates a sub species or race, multiple numbers indicate differing reports)

- 1 Critically Imperiled <5 occ
- 2 Imperiled 6-20 occ
- 3 Rare 21-100 occ
- 4 Not rare > 100 occ
- 5 Secure





## APPENDIX 7

### IPM Pest Threshold Guidelines—ABC Farm

Species Pest	Plant Age	Pest Monitoring Field #	Decision Notes	Action(s) Taken
Grand Twig aphid	0-2	Moderate aphid attack as of 6/10. Bees common- Field 6	Trees can sustain some damage when young w/o delaying harvest or tree quality	No sprays needed.
	3-4 Harvest	Aphids noted on 6/2 scouting scattered in entire area. Significant pitch/bees area. Field 6	With Moderate-High population pressure. Control will be needed.	Spray with Ultor on 6/10. Spray selected as a product soft on any predator(s) and non sucking insects.
Grand Needle Rusts	0-3	Minor rust outbreak along S. edge of Field 8	No fungicide sprays needed on young trees. Attempting to spray out ferns along property edges	Asulox spray in Aug. to control ferns
	4- Harvest	Some continued damage along edge	Fungicide warranted	Bayleton used on field edges where past monitoring has seen yellow needles.
Grand and Noble Bow legged aphid	Pre-harvest	Scatted trees showing attack all year long	Experience suggests that this pest looks worse than the expense for control on young trees	No spray
	Harvest	Pockets of trees Fields 6 and 8	Buyers do not like to see black leaders	Spot sprays with Loresban in June and August
Douglas Needle midge	0-2			
	3yrs- Harvest	Traps set out by April 2. Monitored daily for emergence. Field 10	We hope to export part of this field to MX. Zero tolerance for midge.	Lorsban applications timed to emergence date. Spray on trap emergence and bud swell. Again in 2 weeks.
Noble Spider mites	0-2	Little monitoring attempted		Typically no treatments needed on these ages
	5 yrs- Harvest	Field 11 shows bronzing and spot checks shows mites on 10 % of the trees	Our threshold is 3 mites per needle and 5% of the trees at this level	Onager applied at first sign of hatching

# APPENDIX 8

## IPM Resources for Christmas Trees

### IPM concepts, information, education, events

<http://www.ipmnet.org>  
<http://www.wrpmc.ucdavis.edu/>  
<http://ipm.ncsu.edu/resources/christmastrees.html>  
<http://www.oregon.gov/ODA/PEST/ipm.shtml>  
<http://www.ipm.msu.edu/christmastree.htm>  
<http://ipm.msu.edu/publication.htm> (Michigan)

### U.S. Environmental Protection Agency (EPA)

<http://www.epa.gov/pesticides/food/ipm.htm>

### Weed Identification in Christmas Trees

<http://extension.oregonstate.edu/catalog/details.php?sortnum=0120&name=Christmas+Trees&cat=Agriculture>  
(a variety of publications look for PNW 625)  
<http://ipm.msu.edu/christmastree.htm> (Weed identification in Christmas tree - MI)  
<http://ipm.msu.edu/ctree/contents.htm> (Michigan State University)

### DISEASES and INSECTS

<http://ento.psu.edu/extension/christmas-trees/disease-information/educational-materials>  
<http://www.fs.fed.us/r6/nr/fid/wid.shtml>  
[http://www.na.fs.fed.us/spfo/pubs/howtos/ht\\_bfir/ht\\_bfir.htm](http://www.na.fs.fed.us/spfo/pubs/howtos/ht_bfir/ht_bfir.htm)  
[http://ipm.ncsu.edu/wildlife/christmas\\_trees\\_wildlife.html](http://ipm.ncsu.edu/wildlife/christmas_trees_wildlife.html)  
<http://ento.psu.edu/extension/christmas-trees>  
<http://www.na.fs.fed.us/spfo/pubs/misc/xmastree/>

### Wildlife and Endangered Species

<http://oregonexplorer.info>  
<http://www.fws.gov/oregonfwo/species>  
<http://agr.wa.gov/PestFert/NatResources/EndangSpecies.aspx>  
<http://wdfw.wa.gov/>  
<http://www.oregonforests.org/FactsAndResources/Publications.html>  
(Look for the publications on *Identifying Priority Plants and Animals* and *Guide to Forest Wildlife*)

### Publications

1. Chastagner, G.A., R.S. Byther, A. Antomelli, J. DeAngelis, C. Landgren (eds). 1997. **Christmas tree diseases, insects and disorders in the pacific northwest: Identification and management**. Washington State University Cooperative Extension, Pullman, WA 156pp. MISC 0186- order from <https://pubs.wsu.edu/ListItems.aspx?Keyword=0186>
2. **Scouting Fraser Fir Christmas Trees** AG-573 (\$4.50) Jill R. Sidebottom, Jeff Owen, and Doug Hundley. Color pictures–Grower oriented. A lot of documents are available on the web: <http://www.cfr.ncsu.edu/> (Extension/Extension Forestry/Publications) Contact Ann Napier at the N. C. State University Forestry Department for more info., Phone: 828-684-3562.
3. DeFrancesco J. and K. Murray. 2011. **Pest Management Strategic Plan for Christmas Trees in Oregon, Washington, and Idaho**. Integrated Plant Protection Center–Oregon State University. Corvallis, OR 97331 (pdf). <http://www.ipmcenters.org/pmsp/listPMSP.cfm>
4. Santamaria, L. and Landgren, C. 2012. **Christmas Tree Diseases, Pests and Other Disorders**. Available at: <http://oregonstate.edu/dept/NWREC/christmas.php> or at the SERF web site to download.







# **APPENDIX 11**

## **First Aid & Emergency Medical Services**

### **ABC Tree Farm**

#### **First Aid Kit Locations**

Farm pick up  
Trauma kit—East wall by Tractor (includes cold packs)  
Eye Wash—On 2nd shelf, east wall tractor storage area

#### **Hospital**

Nearest hospital is Legacy, 1234 23rd Ave. in NW Portland. Fastest route to travel: Hwy. 30, Right on Thurmon St. near Montgomery Plaza, follow the “H” signs along Thurmon to 23rd. Emergency entrance on the left.

#### **Or Call 911 for Scappoose EMT/fire**

Farm Location is: 32481 Church Rd., Warren Oregon

#### **Sherrif**

Columbia County—503-397-xxxx

#### **People Trained in First Aid**

John Doe  
Jane Smith  
Manuel Paz

#### **National Poison Control Center**

1-800-222-1222

#### **Chem Trec (spills)**

1-800-429-9300

# Part 4

## ***SERF Conformance Goals, Point Level and Indicators***

### **Northwest Christmas Tree Sustainability Certification- Sustainable and Environmentally Responsible Farm (SERF)**

#### **Goal**

A certified farm supports a balanced economic, social and environmentally sustainable Christmas tree operation. Each farm will develop a Sustainability Plan detailing activities in the five major areas listed on the following pages. The farm must demonstrate via an inspection program that the plan is being used, updated and followed in all phases of operations. Inspections will include all farm personnel (employees, family, contractors) involved in operating the tree farm.

The Point Level for each Conformance Goal is adjusted by relative importance. A 5 point level is considered high and 3 points as moderate.

To be certified under SERF, a farm must attain a 90% pass rate for goals ranked at a 5 point level and an 80% pass rate on those rated at 3 points.

The five pages that follow are the inspection forms used by the evaluators for SERF. Each of the five evaluation topics contains 4-6 specific conformance sub-goals. Each of these has a point level.

Evidence Necessary is summarized according to 3 major categories/types:

- 1) Inspections—includes on-site reviews and interviews;
- 2) Plan—The noted indicator should be an element of the Sustainability Plan or a procedure included within; and
- 3) Record(s)—An element from on-going farm record keeping.

The Conformance Indicators are the items the SERF evaluator will be looking for or asking about

# #1 BIODIVERSITY

Certified farms protect and promote bio-diversity.

No.	Conformance Goal	Point Level	Evidence Necessary	Met	Not Met	Comments	Conformance Indicator
1a	Farm map(s) clearly identifies natural areas, wildlife habitat, water ways, production sites, roads and landings, buildings, and special sites as appropriate.	5	Plan/ Inspection				Map(s) and/or aerial photos clearly and completely outlines listed features consistent with the site.
1b	Measures are taken to protect natural features, water ways, special sites, fish and wildlife habitat and promote bio-diversity on the farm.	5	Plan/ Inspection				1) No negative impact is evident. 2) Positive steps to promote biodiversity are described in the Sustainability Plan 3) Evidence of steps are visible on-site.
1c	New production areas are evaluated for potential impacts to bio-diversity.	3	Record/Plan			N/A option	New site selection evaluation records are kept. Updated site map is provided.
1d	Farm Management ensures that workers and equipment minimize harm to bio-diversity.	5	Corroborative Evid. + Inspection				On-site evidence is consistent with minimizing harm.
1e	The farm is familiar with wildlife species observed on the farm and can identify those that are threatened or endangered (if any).	3	Plan/ Inspection				Farm manager identifies common wildlife species on the site. Investigates possible presence of any Fed./State Threatened or Endangered species and, if present, takes measure to protect or enhance habitats.

## #2 SOIL AND WATER RESOURCES

Certified farms are actively involved in long-term conservation of soil and water resources.

No.	Conformance Goal	Point Level	Evidence Necessary	Met	Not Met	Comments	Conformance Indicator
2a	Farm regularly monitors soil erosion.	5	Plan/Records				Farm provides soils map and records of annual visual inspections and monitoring.
2b	The farm maintains and modifies plans as necessary utilizing soil erosion prevention practices that are consistent with the characteristics and properties of the production site.	5	Plan/Inspection				Identifies and implements plan to minimize erosion. The farm utilizes cover crops, sediment traps, straw, water bars or other containment methods.
2c	The farm identifies water resources and assesses potential impacts of farm activities to water quality.	5	Plan/Inspection				Water resources are clearly shown on farm map. Potential impacts on water quality are identified in the Sustainability Plan. Potential impacts may include evaluation of irrigation, chemicals, soil, fertilizers, and other amendments. If irrigation is used, water management practices are employed.
2d	The farm implements protective measures to mitigate potential negative impact of farm activities on water quality.	5	Plan/Inspection				A Mitigation Plan has been developed. Evidence exists that the mitigation plan is being implemented.

## #3 INTEGRATED PEST MANAGEMENT (IPM)

A certified farm must utilize appropriate IPM techniques to control insects, weeds, diseases and other pests.

No.	Conformance Goal	Point Level	Evidence Necessary	Met	Not Met	Comments	Conformance Indicator
3a	The farm has personnel or contractors trained in integrated pest management systems.	5	Records/ Inspections				Evidence of training, education or qualification documents of applicable course(s) or equivalent expertise.
3b	The farm maintains records of pesticides and fertilizers applied that include target pest, date, location, quantity, application method and applicator.	5	Records				A written or electronic record.
3c	The farm provides evidence of utilizing IPM in their decisions and actions.	3	Plan/Records/ Inspection				1. Records of pest monitoring activities. 2. Review of product(s) applied and records illustrate utilization of PAMS (Prevention, Avoidance, Monitoring and Suppression) techniques for particular pests on farm.
3d	The farm ensures all employees who handle or apply pesticides and fertilizers are trained in accordance to the farms IPM program.	3	Records/ Inspection				1. Training logs or documentation are maintained, and include the following: date of training, names, topics discussed 2. Training is provided in a form appropriate for the workers to understand.
3e	Chemical products and fertilizers are stored and handled in compliance with applicable laws.	5	Inspection				1. Observe on farm storage, MSDS postings, re-entry postings, presence of personal protective equipment as appropriate. 2. Auditor may interview employees who handle product application to ensure compliance with label and laws.

## #4 HEALTH AND SAFETY

Certified farms create a safe working environment for all employees and contractors.

No.	Conformance Goal	Point Level	Evidence Necessary	Met	Not Met	Comments	Conformance Indicator
4a	Person(s) designated to oversee farm health and safety.	3	Records				Provide name(s) of designated person(s) responsible for farm health and safety. With larger farms indicate responsible persons for items like training, equipment safety, risk identification, crew supervision.
4b	Health and safety training is provided to all employees. Contractors must provide verification applicable for their workers.	5	Records/ Inspections				Evidence of safety education and training for employees. Contractors should provide documentation of their training and safety guidelines.
4c	Health and safety risks on the farm are evaluated and training/practices are updated to mitigate the identified risks	3	Records				1. Farm operations are reviewed and health and safety practices are updated as needed. 2. Records of any changes are recorded. 3. Where farms have more than 10 employees this will include records of regular safety minutes.
4d	Have any violations of federal, state and local health & safety regulations occurred? If so, has corrective action has been implemented and documented.	3	Records/ Inspections				Check reviews and corrective actions (if applicable).
4e	One or more employees currently certified in first-aid/ CPR are available on every shift.	3	Records				When work activities are performed, farm manager or contractor must provide evidence that 1 (or more) individuals have current first-aid/CPR certification meeting AHA or Red Cross standards.
4f	First-aid equipment is readily available on the farm or work-site and is appropriate for the type of work being done.	3	Inspections				Maintained First-aid equipment is readily available to the vicinity of the work & in vehicles.



## #5 COMMUNITY AND CONSUMER RELATIONS

A certified farm is active in the community and with industry groups in fostering farm stewardship and environmental education.

No.	Conformance Goal	Point Level	Evidence Necessary	Met	Not Met	Comments	Conformance Indicator
5a	The farm has been involved with community or industry organizations to preserve, protect and conserve natural resources.	3	Records/ Inspections				Interview farm personnel for organization memberships, meeting involvement or view printed and/or electronic materials.
5b	The farm promotes environmental and/or sustainability education.	3	Records				Evidence provided of tours, printed and/or electronic materials, memberships etc.
5c	The farm provides Christmas tree recycling information to customers and the community.	3	Records			N/A-Option	See tag, signage, website or instructions.
5d	The farm has taken measures to educate customers and the community of the benefits of a certified farm grown Christmas tree.	3	Records				Evidence provided of printed and/or electronic materials, signage, ads etc.



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Luisa Santamaria, OSU Extension Nursery Training Specialist, Leader on IPM Training

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