Oregon State University Extension Service **http://cropandsoil.oregonstate.edu/newsnotes/**

CROP and SOIL NEWS/NOTES

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DATES AND PLACES

February 19 – Making Biological Control Work in Your IPM Program. To be held at the Lane County Extension Office, Eugene, 1:30 PM to 5:30 PM. ODA recertification credits will be requested. To register, call 541-682-4243. For further information, contact Mary Staben Halbleib, OSU Integrated Plant Protection Center (email: mary.staben@oregonstate.edu, phone: 541-737-2683)

February 28-29 – Oregon Society of Soil Scientists (OSSS) Annual Meeting, Agate Beach Best Western, Newport. Contact person: Will Austin (phone: 541-737-5731; email: will.austin@oregonstate.edu).

March 4 – Making Biological Control and Pollinator Conservation Work in Your IPM Program. To be held at the Southern Oregon Research and Extension Center, Central Point, from 9:30 AM to 2 PM. No charge if registered by March 1. ODA recertification credits will be requested. To register call Sheila Lee (541-776-7371). For further information, contact Mary Staben Halbleib, OSU Integrated Plant Protection Center (email: mary.staben@oregonstate.edu, phone: 541-737-2683).

May 28 – Hyslop Farm Field Day, Corvallis. Details to be announced at a later date.

WEED CONTROL

Andy Hulting

Glyphosate Resistance Information-National Glyphosate Stewardship Forum II

It is apparent that the issue of glyphosate resistance and glyphosate stewardship are hot topics of discussion among growers at various meetings that have been held recently across the state. Maintaining the utility of glyphosate in wheat-fallow systems, questions about how best to rotate herbicide modes of action to combat glyphosate resistance and techniques for determining the presence of glyphosate resistant weed populations (as opposed to populations that are just naturally tolerant) in particular fields are all issues that have surfaced.

Areas of the country that are dominated by herbicide tolerant cropping systems are already experiencing the evolution of glyphosate resistant weed populations. Nearly a year ago a forum on glyphosate stewardship, sponsored by the North Central Integrated Pest Management Center, was held in St. Louis that brought together various groups concerned about glyphosate stewardship. The printed summary of that forum includes status reports on glyphosate resistant weed species in both the southern and northern US, PowerPoint presentations with images of resistant populations in various crops and proposed plans for stewardship of glyphosate products. Of particular interest are some answers given to questions posed during breakout sessions that were a scheduled part of the forum.

Participants concluded that these principle actions should be pursued related to glyphosate stewardship:

1. Provide uniform labeling statements on glyphosate products based on 5 core practices, which will be provided by the Herbicide Resistance Action Committee (HRAC). Include WSSA group number on glyphosate labels. The labeling process should be facilitated by EPA.
2. Seek to have seed dealers deliver a uniform message on the risks of glyphosate resistant weeds and core management practices by working with the American Seed Trade Association (ASTA).
3. Seek increased education of growers through state pesticide safety education programs (i.e. pesticide applicator training programs) by contacting the American Association of Pesticide Safety Educators (AAPSE).

4. Request the USDA Economic Research Service analyze the cost of glyphosate resistance to production agriculture.
5. Education on glyphosate stewardship should continue in multiple venues including

Extension, certified crop advisors (within the CCA exams), communications from NRCS, popular press articles, and newsletters.

The written summary of the forum can be downloaded at: www.weeds.iastate.edu/mgmt/2007?NGSFII_final.pdf

Feel free to contact the Weed Science Group if you have questions or concerns related to glyphosate stewardship in Oregon.

POTATOES

Jeff McMorran

The National December Potato Meetings - What's New

Each year the potato seed community of the US and Canada get together in early December to discuss certification, production, and other economic issues related to seed potatoes. This year's week of meetings was held in Branson, Missouri. Branson is nestled in the Ozark 'Mountains'. Its official web site claims it has a "unique combination of live entertainment and traditional family fun. From big stars to a big splash, Branson is a destination unlike any other!" That may be so, but most of us were far too busy with potato-related business to enjoy much of it. Some of what we discussed is condensed below.

Nematodes: Nematodes certainly were the topic of the day. As most of you are aware all fresh market and seed potato trade with Alberta was suspended this fall due to the finding of 5 Golden Nematode cysts in two samples of soil from fields located in the Edmonton area. Because over 30% of the Washington early season processing potatoes come from Alberta this disruption in trade could have a major impact on Alberta and the Western US that have come to rely on seed from this source. The find in Canada occurred so late in the season that the soil froze before enough samples were taken to delimit the 'quarantine area' or even find the 'index field'. Thus the USDA acted properly in closing the border with Canada. It was simply following the 'management plan' agreed to by Canada and the US when Potato Cyst Nematode was found in Idaho last year. So, will the border be open by this year's planting season? It can't be opened until enough soil sampling and processing (and the subsequent trace-back/trace-forward) has been done to satisfy

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USDA that seed from Alberta outside a 'delimited area' does not pose a significant risk to US growers. In my opinion, that is not likely to happen any time soon, certainly not before mid-spring (like I said...'in *my* opinion'). What's at risk is not just the health of potatoes produced in our fields, but the continued ability to export our seed and fresh product overseas.

So what about the nematode situation in Idaho, where Potato Cyst Nematode was found last year? Good news, USDA has been able to complete soil sampling and was able to 'delimit' the quarantine area to a relatively small region of Idaho, far outside their seed producing areas. USDA and the Idaho Department of Ag hope to eradicate this pest from these fields by a strict 2-year treatment including a fall soil fumigation with Metam-sodium, the growth of an oil-seed radish cover crop, followed by a spring Telone treatment and a non-host crop. If no potato cysts are found following the second non-host crop, then a commercial potato crop will be allowed the following year under a strict crop rotation plan (no potatoes following potatoes). Is it really possible to eradicate this pest? If you define 'eradicate' as bringing the pest below the level of detection, probably. In fact, experts feel that growers who just follow the standard 3-4 year crop rotation and fumigation practices normally used in the Western states are not likely to ever notice damage form Potato Cyst Nematode even if they had some in their soil.

Potato Virus Y: The other hot topic was what to do about virus-induced mosaic and the ever increasing threat of new 'necrotic' strains of PVY. The 3 year 'PVY survey' conducted on final-year seed potatoes has been completed. The general outcome of this study was (1) there is a low level, but broad spread, presence of various strains of PVY in the US (including PVYn, PVYntn, PVYo, PVYno) ; (2) ELISA alone did not accurately identify PVY strains; (3) there was ample evidence of mixed infection and genetic cross over among strains. Allied research showed evidence that different varieties of potatoes reacted differently to differing strains of PVY, i.e. A93157-6LS was resistant to the PVYo strain, but not the PVYn strain, and while many varieties show tuber necrosis to PVYntn some do not. In fact, Shepody never showed necrotic arcs to any strains.

What does this all mean? The 'Necrotic Virus Management Plan' task force on PVY recommended: (1) managing PVY as a single virus and not trying to manage strains of PVY; (2) doing away with the Field Year 2 PVYn survey (it didn't seem to be accomplishing anything); and (3) considering mandatory ELISA sampling of materials in the Post-Harvest test (aka Winter Grow-out). As of this year Idaho already requires laboratory testing of all lots in their WGO for PVY. I estimated that this would add about $16,000 in cost to the Oregon program to adopt a similar requirement (or $190/lot). A new committee (of which I am a member) has been formed to consider how to manage PVY/Mosaic on a national level and to discuss changes to the PVY Management Plan with Canada. This committee has been charged to consider the economic implications of all recommendations they make. I am sure changes are in store, but as to what... stay tuned.

During the NPC and PAA certification meetings, we also discussed the Potato Wart situation in Canada, the current status of the 'Seed Potato National Harmonization Plan' (aka MOU), standardization of seed tag design, UNECE & NAPPO activities, and the status of Bacterial Ring Rot and Potato Tuber Moth. The NPC Seed seminar included information on the national energy trends and ethanol opportunities, new and upcoming potato varieties; the latest information on Black Dot, Silver Scurf, and Scab. These were all interesting and informative, but I am only allowed so much space here, so if you are interested in more detail on any of these topics, or would like a copy of the minutes/proceedings, let me know.

As for now... just enjoy that potato!

CEREALS

Mike Flowers

Wheat acreage in the Willamette valley has increased substantially this year. To assist Willamette valley growers in optimizing yields, the following review of spring management practices was developed. The review was developed by extension agents Mark Mellbye, Tom Silberstein, and I for a recent grower meeting.

Optimizing Wheat Yields in the Willamette Valley
A Review of Spring Management Practices, 2008

Introduction

Regardless of price, management practices to optimize wheat yields are important, but with the highest prices in living memory it's a lot more fun and profitable to achieve maximum economic yield (MEY) in the current market.

The purpose of this meeting handout is to provide a short review of the key agronomic management practices essential to reach maximum economic yield levels in the Willamette Valley.

Fall considerations

Planting date, seeding rate, and variety selection are important steps to achieving high yields. We assume you've already made these decisions – this guide focuses on spring practices.

Direct-seeding

Winter and spring wheat have performed very well when no-till planted into grass seed fields with yields in some cases

exceeding 120 bu/acre. From an economic and crop rotation point of view, direct seeding wheat is a superior approach in grass seed production. Importantly, no-till does not disturb the soil structure and tilth that is so important to aeration and drainage in the surface of grass seed fields, especially those that are marginal for wheat production because of poor drainage.

Spring Planting

If you haven't planted yet, consider going with a spring variety that has good stripe rust resistance. In general, spring wheat's do as well as winter wheat varieties planted in Feb. and are certainly a better choice by early March.

No-till wheat in Linn Co. following tall fescue. Yield was120 bu/a with < 100 lb N/a using the Nmin test

While Foote can be planted late, it is too susceptible to stripe rust and therefore too risky to plant even with an aggressive fungicide spray program. Consider these spring wheat varieties: Merrill, Alturas, Loiuse, and Alpowa

The stripe rust situation

Historically, stripe rust is one of the most devastating diseases of wheat, but genetic resistance in modern cultivars has mostly kept the fungus at bay. This resistance broke down a few years ago on spring wheat varieties, with Penawawa, Zak, Treasure, Whitebird, and others susceptible. In 2004, to the surprise of many, stripe rust was widespread on Foote in Western Oregon, fueled by ideal weather conditions and the appearance of a new virulent race of the disease. Foote has seedling resistance that is not effective against this new race of stripe rust, and Foote lacks high temperature adult plant (HTAP) resistance, the genetic package that confers broad resistance to PNW winter wheat varieties.

Madsen and Goetze have shown excellent stripe rust resistance. Tubbs is moderately susceptible to stripe rust and should be scouted regularly.

The spring wheat varieties Merrill and Alturas have shown good stripe rust resistance. Louise has HTAP resistance and has shown good stripe rust resistance except when the disease appears early in the growing season. Alpowa is moderately susceptible to stripe rust and should be scouted regularly.

Spring Fertilizer

Use the Nmin test and get the N fertilizer on before jointing!

Spring N fertilizer rates range from 80 to 160 lb/a for winter wheat. A relatively new soil test, the "Nmin" test, has proven to be a very useful tool in fine-tuning spring N rates.

The Nmin test, while not cheap ($45), has helped growers reduce fertilizer costs and avoid lodging losses with confidence. The Nmin soil sample should be taken in January (see references).

Nitrogen timing on a wheat crop is far more critical than it is on grass seed crops. Nitrogen application should be completed before jointing stage of growth (Feekes 6). Apply single or split applications in mid-Feb. to early March.

Where *take-all* disease is a concern, use of ammonium sulfate and chloride fertilizers help suppress the disease. In a split application in the spring, the most benefit from these fertilizer sources comes from the first application in mid-February (Feekes growth stage 4). The remaining N can go on a few weeks later, but before jointing, as urea.

What about later applications as done by wheat growers in some areas of New Zealand and Europe? While they may get an advantage in their production systems, there is no advantage to this with PNW soft white winter wheat varieties.

To help evaluate your spring N program, check your grain protein at harvest. With good yield levels, a grain protein level of 8.5% to 9.5% indicates you were right on. Higher levels (>10%) indicate excess N was used.

Disease Control

Fields should be scouted on a regular basis in the spring to determine if disease is present. The last few years, disease levels have been low but that is no indication of what might happen this year. Diseases of concern include stripe rust, septoria, mildew, and perhaps other minor foliar disease.

In the last two years of our spray trials for septoria control we have not measured a response to fungicide use on Madsen,

Tubbs, or Goetze. However, disease levels have been low the last two years. Studies with increased disease pressure have shown a 5 to 10 bu/a increase with fungicide application. To insure good yields and test weights, a single application of fungicide at flag leaf emergence (mid-April to early May) is recommended. Additional (2^{nd}) fungicide applications or head sprays are not recommended because they are seldom beneficial.

In scouting, it's helpful to remember that the flag begins to emerge just after the 3^{rd} above-ground node is observed on most varieties.

Grass Weed control

Controlling grassy weeds is extremely important to achieve high wheat yields. One grassy weed like ryegrass or wild oats per square foot in a wheat field can reduce yields 4% or more. In a grass seed rotation, delaying the planting date to allow a glyphosate burn down can be a critical part of the weed control program.

In the established and emerged crop, there is a good choice of herbicides to choose from in growing wheat. If you don't have bromes, rattail, or Hoelon-resistant wild oats or resistant ryegrass, then the traditional diuron (1-2 leaf wheat) followed by Hoelon (winter) is still an excellent program. Hoelon has soil and post-emergence activity and can be applied in January and February, but usually works best applied in wet, cold, sloppy winter weather.

Where rattail, poa, bromes or weeds tolerant to the diuron/Hoelon program are present, a sequential application of Axiom followed by a grass herbicide like Osprey early postemergence (mid Jan. to early Feb.) will do an excellent job on most grassy weeds. Other postemergence grass herbicides are also available, and may be a better choice than Osprey, depending on the particular weed spectrum. Where bromes are a major concern, the use of Olympus or Olympus Flex may be a better choice. Puma, Axial, Achieve, and Everest are also herbicides for use as postemergence grass herbicides in wheat. Your field rep can help you choose the best product depending on the weed problem and crop rotation considerations. Regardless of the early fall herbicide used, it is important to follow up with a postemergence herbicide to control grasses.

Broadleaf weed control

Excellent control of broadleaf weeds can be achieved in wheat with labeled herbicides. Make your choice based on weeds present. To avoid crop injury, do not apply phenoxy herbicides after the wheat crop begins stem elongation (jointing). Wheat tolerates most phenoxy herbicides only up to the 2-node stage in late-March/early April. 2,4-D ester and dicamba are ones to be particularly careful about, but check label cut-off timings on any product to prevent this sort of avoidable injury.

Just like in grass seed crops, spray drift of phenoxy herbicides can be a problem in wheat, especially near sensitive crops like grapes, clover, and meadowfoam. In addition to watching the weather during spraying, we recommend the use of amine formulations and use of drift reduction nozzles to help avoid off-target spray drift problems.

PGR – are they needed?

The use of plant growth regulators or PGR products on winter wheat is not recommended as a routine practice. Our PNW winter wheat varieties are semi-dwarf and selected for good lodging resistance. Don't over fertilize!

Irrigated producers of spring wheat may wish to apply a growth regulator to prevent lodging and achieve high yields. Among recommended soft white spring wheat's, Lousie is the most susceptible to lodging. Note that many plant growth regulators commonly used in grass seed crops are not labeled for wheat.

Aphids and other insects

In the spring, aphids and cereal leaf beetle (CLB) may be problems. Scout and use labeled insecticides to control these pests if necessary.

Often a low-cost insecticide such as Dimethoate to control aphids can be cost-effective. The threshold for aphids is at least 2 per stem. Aphid numbers are held in check by predators and parasites most years, and routine preventative spraying is not recommended.

If CLB is present at treatable thresholds (3 per plant or 1 per flag leaf), and biocontrol agents are not present, treat with MustangMax, Baythroid, malathion, or other labeled products. Note that Dimethoate is not effective on CLB.

Insecticides and fungicides may be tank-mixed to save a trip across the field, but make sure timing is optimum for control.

Grain moisture at harvest

Make sure grain moisture is below 12 % at harvest.

References

Combating Take-All of Winter Wheat in Western Oregon. EC 1423

Winter Wheat Fertilizer Guide. FG9

Using the Nitrogen Mineralization Soil Test to Predict Spring Fertilizer N Rates. FS 334-E

Seeding Rate Guidelines for Winter Wheat. Linn County Extension handout

Cereal Variety Trial Results. Department of Crop and Soil Science, OSU. Extension Cereals. http://cropandsoil.oregonstate.edu/cereals/index. Html

Analytical labs serving Oregon. OSU Extension. EM 8677.

SEED PRODUCTION

Bill Young

Grass and Legume Seed Estimates for 2007

Once again I'm very pleased to be able provide our Extension estimates for grass and legume seed crops from the 2006-07 crop year. The process of gathering data on the value of all farm and ranch sales (estimates from each of Oregon's 36 counties) is under the leadership of Dr. Larry Burt, Extension Marketing Economist in the Department of Agricultural and Resource Economics (AREc).

These production statistics are currently available online through AREc's Oregon Agricultural Information Network (http://oregonstate.edu/oain) from 2007 back to 1976. This database contains county and state level statistics on all Oregon commodities. No password is needed for the guest login – just leave the password blank. Once you are beyond the login screen, there is a pull-down menu of multiple "canned" reports to choose from, or you may generate your own with the user defined report/query option. Generated files may be printed to screen or downloaded for use with any spreadsheet software.

Working with the AREc data source I have prepared a summary table on page 7 showing statistics on 2007's grass and legume seed acreage, production, and sales. The combined value of all grass and legume seed crops in the 2006-07 crop year ($503,573,000) increased 5.5% over the production in 2005-06 ($477,408,000). This increase of over $26 million in sales surpassed the industry's value beyond last year's historic high.

As stated above, the value of grass and legume seed crops in 2006 was $503,573,000. Of this total, grass seed crops accounted for 95.3% ($480,059,000); legume seed crops were valued at $23,573,000 (4.7%). The value of all grass seed species increased 5.7% over the 2005-06 crop year, in spite of a decrease of 9,668 acres (1.8%) in 2006-07. Legume seed crop acreage decreased by 5.8% (1,955 acres) while the value of all legume species increased 1.9% over the previous year.

The increase in farm gate value seen in the 2006-07 crop year is due to largely to higher prices paid for most species. This year, all but two grass species saw increased prices paid to producers: orchardgrass (+50.7%), creeping red fescue (+14.8%), Chewings fescue (+12.2%), tall fescue (+9.8%), annual ryegrass (+7.7%), Kentucky bluegrass (+6.7%), Colonial bentgrass (+2.1%), and hard fescue (+0.3%). Creeping bentgrass prices were unchanged from last year and only perennial ryegrass (-3.8%) and rough bluegrass (-0.9%) declined in price compared to 2005-06.

In spite of there being 9,668 few acres of grass seed produced in 2006-07, shifts in species grown compared to the previous year found more acres of: hard fescue (+51.2%), Chewings fescue (+12.8%), creeping bentgrass (+6.1%), creeping red fescue (+4%), and tall fescue (+2.1%). Species with reduced acres in production this year included: Colonial bentgrass (-10%), Kentucky bluegrass (-7%), perennial ryegrass (-5.5%), annual ryegrass (-2.8%), and orchardgrass (-2.8%).

The combination of reduced acres and average to slightly higher seed yields (for most species) resulted in a small (0.4%) reduction in the total poundage of all grass seed species. The 2005-06 record crop of 788,882,000 pounds of seed was down by 3,371,000 pounds to 785,511,000 pounds this year. However, that level of production is still greater than the previous "2nd place" record of 776,303,000 pounds produced in the 1998-99 crop year.

Prices paid for all legume seed crops were higher except for common vetch, which was unchanged from one year ago. Increases in prices for species were: crimson clover (+56.7%), white clover (+15.7%), alfalfa (+12.4%), red clover (+12.2%), arrowleaf clover (+6.1%), and hairy vetch (+5.7%). Acreage of all species was lower in 2006-07 except for hairy vetch (+34.4%) and white clover (+8.7%). Total production of legume seeds was 2,613,000 pounds less (-12.3%) than in the 2005-06 crop year.

Frequently, however, we desire to know more specific information on production by county or crop reporting districts. The tables on pages 8 and 9 show how 2007 acres of grass and legume seed crop were distributed across the state.

For a comparison of the OSU Extension estimates over the last three years (2005, 2006 and 2007), I have prepared two tables on pages 10 (grasses) and 11 (legumes).

Oregon Grass and Legume Seed Crops Preliminary Estimates, 2007.[1]

Species	Area Harvested	Yield per acre	Production	Price	Value of production
	(acres)	(lbs.)	(000 lbs.)	($ / cwt)	(000 $)
Grass					
Annual ryegrass	128,100	1,853	237,400	28.00	66,472
Perennial ryegrass	161,120	1,496	241,083	66.59	160,540
Tall fescue	161,490	1,521	245,587	75.01	184,225
Kentucky bluegrass	19,760	1,112	21,969	97.01	21,311
Rough bluegrass	2,300	1,030	2,369	112.00	2,653
Orchardgrass	15,530	766	11,897	139.99	16,654
Chewings fescue	9,310	1,181	10,997	83.37	9,168
Red fescue	7,480	1,005	7,521	72.23	5,432
Hard fescue	2,162	840	1,817	87.34	1,587
Colonial bentgrass	3,160	452	1,428	117.37	1,676
Creeping bentgrass	5,380	640	3,443	300.35	10,341
Total Grass	515,792		785,511		480,059
Legume					
Alfalfa	3,240	645	2,090	147.90	3,091
Red clover	14,520	626	9,088	120.03	10,908
Crimson clover	3,580	784	2,806	101.34	2,844
Common vetch	20	1,000	20	75.00	15
Hairy vetch	430	800	344	95.00	327
White clover	9,130	403	3,677	156.00	5,736
Arrowleaf clover	885	749	663	89.46	593
Total Legume	31,805		18,688		23,514
Total Grass & Legume	**547,597**		**804,199**		**503,573**

[1]Data collected by the Extension Economic Information Office, Oregon State University, and compiled by William C. Young III, Extension Agronomist, Department of Crop and Soil Science, OSU.

Extension estimates for Oregon forage and turf grass seed crop acreage, 2007[1].

County/District	Annual ryegrass	Perennial ryegrass	Tall fescue	Kentucky bluegrass	Rough bluegrass	Orchard-grass	Chewings fescue	Red fescue	Hard fescue	Colonial bentgrass	Creeping bentgrass	Total acres
Benton	13,000	7,500	11,130			3,400					650	35,680
Clackamas		4,300	3,200				500	350			390	8,740
Lane	10,200	7,750	9,200			1,080					450	28,680
Linn	92,600	52,400	37,250			4,160	1,200	450		1,400	850	190,310
Marion	2,000	48,000	18,000			600	6,500	3,200	1,020	1,500	3,000	83,820
Polk	7,000	13,000	27,500			4,400						51,900
Washington		6,900	22,700									29,600
Yamhill	2,500	15,200	28,200			1,500						47,400
Northwest District	127,300	155,050	157,180			15,140	8,200	4,000	1,020	2,900	5,340	476,130
Umatilla		4,600	3,210	5,150								12,960
Union				6,100			600	3,200	406			10,306
Northeast District		4,600	3,210	11,250			600	3,200	406			23,266
Jefferson				7,020	2,300							9,320
Southeast District				7,020	2,300							9,320
Morrow		1,400	600	1,300								3,300
Northcentral District		1,400	600	1,300								3,300
Other counties[2]	800	70	500	190		390	510	280	736	260	40	3,776
Oregon	**128,100**	**161,120**	**161,490**	**19,760**	**2,300**	**15,530**	**9,310**	**7,480**	**2,162**	**3,160**	**5,380**	**515,792**

[1]Data collected by the Extension Economic Information Office, Oregon State University, and compiled by William C. Young III, Extension Agronomist, Department of Crop and Soil Science, OSU.

[2]If there are less than three growers or if one grower represents 60% or more of the data, the data are confidential.

Extension estimates for Oregon legume seed crop acreage, 2007.[1]

County/District	Alfalfa	Red clover	Crimson clover	Common vetch	Hairy vetch	White clover	Arrowleaf clover	Total acres
Benton		300				830		1,130
Clackamas		900						900
Lane						300		300
Linn						7,920		7,920
Marion		450						450
Multnomah		300						300
Polk		2,300						2,300
Washington		6,000	2,400		370			8,770
Yamhill		3,700	450					4,150
Northwest District		13,950	2,850		370	9,050		26,220
Malheur	2,960							2,960
Southeast District	2,960							2,960
Other counties[2]	280	570	730	20	60	80	885	2,625
Oregon	**3,240**	**14,520**	**3,580**	**20**	**430**	**9,130**	**885**	**31,805**

[1]Data collected by the Extension Economic Information Office, Oregon State University, and compiled by William C. Young III, Extension Agronomist, Department of Crop and Soil Science, OSU.

[2]If there are less than three growers or if one grower represents 60% or more of the data, the data are confidential.

Oregon Grass Seed Crop Estimates[1]

Estimates for 2005r, 2006r and 2007p

	Harvested Acres	Yield (lb/a)	Production (000 lbs.)	Price per cwt	Sales (000 $)
2005 Annual ryegrass	125,400	1,462	183,348	27.98	51,309
2006 Annual ryegrass	131,800	1,883	248,135	25.99	64,501
2007 Annual ryegrass	128,100	1,853	237,400	28.00	66,472
2005 Perennial ryegrass	192,950	1,387	267,556	54.76	146,510
2006 Perennial ryegrass	170,570	1,415	241,369	69.22	167,083
2007 Perennial ryegrass	161,120	1,496	241,083	66.59	160,540
2005 Tall fescue	145,330	1,508	219,158	49.83	109,199
2006 Tall fescue	158,170	1,510	238,783	68.29	163,054
2007 Tall fescue	161,490	1,521	245,587	75.01	184,225
2005 Kentucky bluegrass	21,600	867	18,718	77.87	14,575
2006 Kentucky bluegrass	21,240	1,065	22,623	90.91	20,567
2007 Kentucky bluegrass	19,760	1,112	21,969	97.01	21,311
2005 Rough bluegrass	2,420	951	2,302	114.15	2,628
2006 Rough bluegrass	2,260	1,010	2,283	113.00	2,580
2007 Rough bluegrass	2,300	1,030	2,369	112.00	2,653
2005 Orchardgrass	17,370	682	11,838	69.98	8,284
2006 Orchardgrass	15,970	913	14,579	92.88	13,541
2007 Orchardgrass	15,530	766	11,897	139.99	16,654
2005 Chewings fescue	7,090	930	6,594	58.56	3,861
2006 Chewings fescue	8,250	1,215	10,025	74.28	7,446
2007 Chewings fescue	9,310	1,181	10,997	83.37	9,168
2005 Red fescue	6,790	748	5,082	45.96	2,336
2006 Red fescue	7,190	703	5,057	62.93	3,182
2007 Red fescue	7,480	1,005	7,521	72.23	5,432
2005 Hard fescue	1,300	888	1,154	60.64	700
2006 Hard fescue	1,430	815	1,166	87.09	1,015
2007 Hard fescue	2,162	840	1,817	87.34	1,587
2005 Colonial bentgrass	4,050	433	1,753	115.00	2,016
2006 Colonial bentgrass	3,510	499	1,753	115.00	2,016
2007 Colonial bentgrass	3,160	452	1,428	117.37	1,676
2005 Creeping bentgrass	4,460	547	2,440	302.24	7,375
2006 Creeping bentgrass	5,070	613	3,109	300.39	9,339
2007 Creeping bentgrass	5,380	640	3,443	300.35	10,341
2005 Total Grass	528,760		719,943		348,793
2006 Total Grass	525,460		788,882		454,324
2007 Total Grass	515,792		785,511		480,059

[1]Data collected by the Extension Economic Information Office, Oregon State University and compiled by William C. Young III, Extension Agronomist, Department of Crop and Soil Science, OSU.

r = revised, p = preliminary.

Oregon Legume Seed Crop Estimates[1]

Estimates for 2005r, 2006r and 2007p

	Harvested Acres	Yield (lb/a)	Production (000 lbs.)	Price per cwt	Sales (000 $)
2005 Alfalfa	4,870	642	3,125	121.88	3,809
2006 Alfalfa	3,880	616	2,392	131.56	3,147
2007 Alfalfa	3,240	645	2,090	147.90	3,091
2005 Red clover	13,790	545	7,509	100.87	7,574
2006 Red clover	15,610	554	8,644	106.94	9,244
2007 Red clover	14,520	626	9,088	120.03	10,908
2005 Crimson clover	6,100	784	4,785	49.77	2,381
2006 Crimson clover	4,300	831	3,575	64.70	2,313
2007 Crimson clover	3,580	784	2,806	101.34	2,844
2005 Common vetch	190	1,000	190	75.00	143
2006 Common vetch	240	1,000	240	75.00	180
2007 Common vetch	20	1,000	20	75.00	15
2005 Hairy vetch	250	700	175	75.00	131
2006 Hairy vetch	320	800	256	90.00	230
2007 Hairy vetch	430	800	344	95.00	327
2005 White clover	6,350	600	3,810	170.00	6,477
2006 White clover	8,400	648	5,441	134.81	7,335
2007 White clover	9,130	403	3,677	156.00	5,736
2005 Arrowleaf clover	1,020	831	848	87.92	746
2006 Arrowleaf clover	1,010	746	753	84.29	635
2007 Arrowleaf clover	885	749	663	89.46	593
2005 Total Legumes	32,570		20,442		21,261
2006 Total Legumes	33,760		21,301		23,084
2007 Total Legumes	31,805		18,688		23,514

[1]Data collected by the Extension Economic Information Office, Oregon State University and compiled by William C. Young III, Extension Agronomist, Department of Crop and Soil Science, OSU.

r = revised, p = preliminary.

SEED CERTIFICATION

Sandy Smith

Summary of New Plantings for Oregon Certification

The accompanying table summarizes the applications for new plantings in 2007 submitted to the Oregon Seed Certification Service and processed as of January 14, 2008. Submissions for the four prior years are also listed for comparison*. While the number of crops represented (37) is comparable to recent years, the total acres planted and submitted for certification decreased 25%.

In reviewing the crops with significant certification acreage, the following percentages indicate the change in the number of acres planted in 2007 relative to the crop's most recent five-year average (2002-2006): Tall fescue (+3%); Perennial ryegrass (-50%); Kentucky bluegrass (-14%); Chewings fescue (-32%); and Wheat (+9%). Comparisons to plantings in 2006 for these crops show: Tall fescue (-25%); Perennial ryegrass (-49%);

Kentucky bluegrass (-5%); Chewings fescue (-44%); and Wheat (-1%).

Please keep in mind that the overall total acres for inspection in the program this crop year will depend on the number of acres replanted, and the acres retained or removed from the certification program. We will publish a summary of the acres applied for crop inspection in early May to provide a broader measure of certification activity for the 2008 crop season. This and other certification summaries are available in the Publications/Special Reports section of the Oregon Seed Certification Service home page, www.oscs.orst.edu.

	New Fields					New Acres				
Crop Kind	2007	2006	2005	2004	2003	2007	2006	2005	2004	2003
Alfalfa	4	1	2	5	8	240	21	119	259	376
Annual rape	25	26	21	13	6	1,219	808	519	199	404
Annual ryegrass	54	45	37	58	23	2,451	2,178	1,913	2,566	948
Arrowleaf clover	1	1	2	5	12	85	60	105	218	522
Barley	24	22	23	24	25	1,344	1,024	1,215	901	974
Big bluegrass			2	1				9	13	
Blue fescue		1	2				48	53		
Blue wildrye				2					2	
Chewings fescue	33	45	70	51	37	1,122	1,995	2,650	2,024	1,411
Chickpea	1	5	10	5		32	219	324	99	
Club wheat	4	3	3	4		446	273	536	313	
Colonial bentgrass	1	7	6	16	19	7	202	118	641	585
Creeping bentgrass	38	32	43	44	33	968	738	1,063	1,128	924
Crested dogtail	1					7				
Crimson clover	6	2	2	6		365	35	33	290	
Festulolium				1					40	
Field bean	1	2				125	230			
Field pea	1	1				7	3			
Hard fescue	18	19	18	14	15	472	799	535	371	360
Idaho bentgrass		1					49			
Intermediate ryegrass	12	16	13	19	43	421	506	549	682	1,706
Kale	1		1	3	2	16		29	33	20
Kentucky bluegrass	94	119	107	153	105	4,126	4,326	5,471	6,675	4,918
Ladino clover	13	15	8	2		1,351	1,475	858	180	
Lewis flax	1				1	16				7
Little burnet	1		2	1		8		59	42	
Meadow fescue		1					5			
Meadowfoam	2	7	7	5		28	209	127	142	
Mountain brome		2					31			
Oat	12	16	5	21	20	440	712	246	690	758
Orchardgrass	25	37	9	20	29	768	991	283	757	1,064
Oriental mustard		1	1				75	60		
Perennial ryegrass	260	560	500	618	679	11,137	21,866	20,555	25,235	28,486
Red clover	13	20	14	11	11	483	896	509	567	451
Red fescue	21	47	39	44	39	790	1,961	1,291	2,043	1,724
Red oat		8	5		1		334	253		22
Riverbank lupine	1					3				
Rough bluegrass	34	30	33	29	32	1,023	920	1,117	848	1,062
Seashore paspalum	10	2	3			118	113	25		

Crop Kind	New Fields 2007	2006	2005	2004	2003	New Acres 2007	2006	2005	2004	2003
Sheep fescue	4	2	2	1		69	99	190	30	
Smooth brome	1				2	5				25
Sudangrass	6	2	2	5	2	286	240	40	171	75
Sugar beet		5		15	11		117		15	14
Sunflower	5	2				225	101			
Swede				1					5	
Tall fescue	433	616	385	479	348	19,078	25,389	17,804	20,435	18,310
Triticale	5	4	4	1	2	218	131	210	80	14
Tufted hairgrass	1	1	1			7	6	16		
Turnip		2		5	3		57		136	52
Velvet bentgrass	5	3	2	1		112	49	30	8	
Wheat	148	131	151	179	75	9,208	9,290	8,250	11,347	3,022
White clover	7	6	10	10	6	594	116	692	385	304
White mustard				3					78	
Winter rape	1					25				
Wood bluegrass		1	3				16	31		
Totals	1,306	1,867	1,556	1,877	1,603	58,843	78,818	68,067	79,551	68,952

*Includes all applications received and processed by: 01/14/08; 01/10/07; 01/09/06; 01/10/05; and 01/12/04.

SOILS

John Hart

The article below is a draft of approximately one-half of an extension publication on Christmas tree needle sampling that will be completed later this year.

Needle or tissue sampling for Douglas-fir and Noble Fir Christmas tree production in western Oregon

John Hart, Chal Landgren, and Rick Fletcher

Mineral nutrients such as nitrogen (N), phosphorus (P), and potassium (K) are added as fertilizer to Christmas tree plantations to supplement nutrients supplied by soil. After trees are established, the need for fertilizer can be estimated by analyzing dried needles for nutrients, a process commonly called tissue testing. Tissue testing can help you decide if fertilizer is needed and how much and what kind to use.

Annual tissue testing or foliar analysis is recommended for trees 3 years and older. Detection of declining foliar nutrient levels allows fertilizer to be applied before nutrient deficiencies result in impaired tree growth and/or quality. Recommendations based on foliar tests are designed to keep trees healthy, insure adequate growth and sufficient color. Foliar analysis determines if nutrients are adequate or lacking. Knowing which nutrients are needed and purchasing only needed fertilizer will save you money. Tissue testing can allow you to anticipate low or marginal nutrient situation so a crisis of deficiency and unmarketable trees is avoided.

Tissue analysis is recommended for commercial production of Noble fir and Douglas-fir Christmas trees. Other species such as Grand and Nordmann Fir can be sampled following the same procedures used for Douglas and Noble fir. Unlike Noble and Douglas-fir, the tissue standards provided for in this publication for adequacy of nutrients in Grand and Nordmann fir are a combination of experience and data taken from other areas. We feel the standards provide reasonable guidance, but have not been verified through field trials in Oregon as has the Noble and Douglas-fir data.

This guide is written for plantation grown trees established at standard densities of 900-1800 per acre on clay loam soils Aloha, Apt, Bellpine, Goble, Honeygrove, Jory, Laurelwood, Nekia, and Steiwer in the foothill locations of the Willamette Valley. Broadcast nutrient application should not be adjusted or changed for planting density.

The condition of the trees and the site are important variables. For example, a site with heavy weed competition may not produce any growth or color change from fertilizer additions as the weeds may be first to use the added nutrients. Root diseases

may limit nutrient uptake. Insect damage from aphids or adelgids may stunt needles and influence results.

Plant tissue analysis indicates which nutrients are accumulated in adequate, deficient, or excessive amounts. Addition of nutrients when tissue concentration is sufficient will not result in faster growth, more growth, or a darker color. No economic benefit will be obtained when nutrients already present in sufficient quantities are added.

If problems such as poor growth or discoloration of needles appear during the growing season, you can use a comparative tissue test to check for possible nutrient deficiencies. You can collect samples to diagnose deficiencies at any time during the season. However, when outside proper time period (see "When to sample"), you also must collect a companion sample from an unaffected area for comparison.

To start evaluating tree nutrient sufficiency with a needle sample, you need the following information, which is provided in this publication:

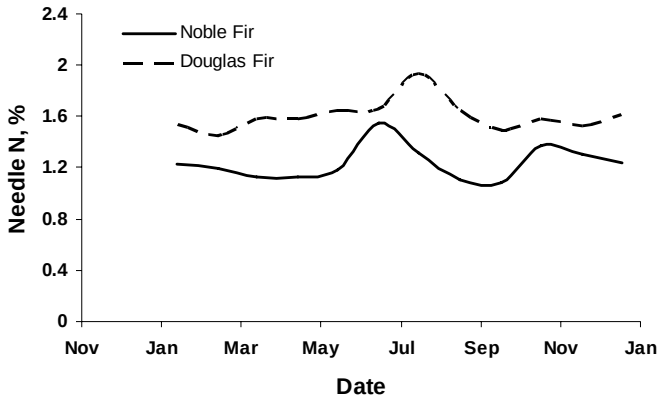
- When to sample
- Plant part to sample
- Normal or sufficient concentration for each nutrient so you can interpret results

When to sample

Sample Christmas tree needles in January or February. Foliar sample timing is critical for accurate results. Recommendations in this guide are based on winter foliage sampling. Samples taken during different times of the year cannot be interpreted accurately using figures from this publication**.**

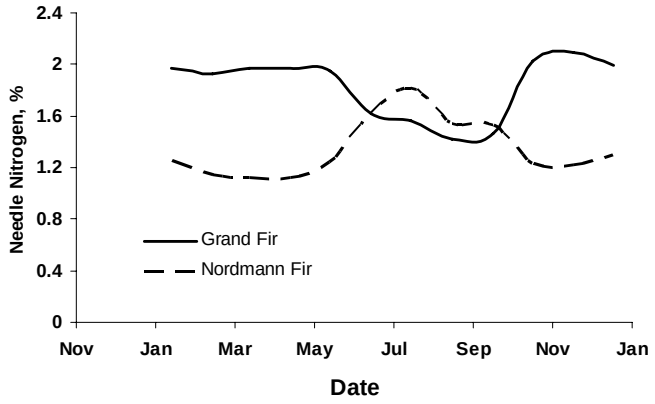
Tissue samples should be collected when nutrient concentration is stable. Samples collected just a few days apart during periods of rapid change in nutrient concentration can give quite different results. Figure 1 shows that tissue nitrogen concentration is stable from January through April for Douglas-fir and Noble Fir.

Figure 1. Seasonal needle N concentration for Noble Fir and Douglas-fir Christmas trees.



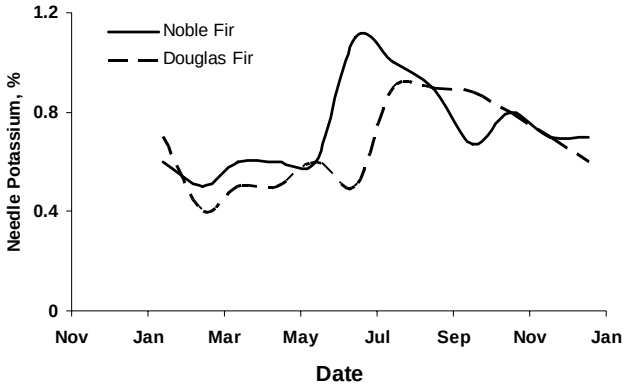
The same seasonal pattern is shown for Grand, and Nordmann Fir in Figure 2. One difference to note is the higher needle nitrogen concentration in Grand Fir compared to the other species, especially Noble Fir. The Grand and Noble Fir were grown on the same site with no N applied.

Figure 2. Seasonal needle N concentration for Nordmann Fir and Grand Fir Christmas trees.



Not all nutrients follow the same pattern as nitrogen. Potassium concentration doubles in new growth compared to winter concentration. In addition, the concentration is not stable in Douglas-fir or Noble Fir foliage until late winter or early spring as shown in Figure 3. Unfortunately, early spring sampling, April for example, does not allow sufficient time for sampling, analysis, and fertilizer application with a high probability of reliable moisture for fertilizer movement into the tree root zone.

Figure 3. Seasonal needle potassium concentration for Noble Fir and Douglas-fir Christmas trees.



The same dilemma exists with needle potassium in Nordmann and Grand Fir changes throughout the year, as with Douglas and Noble fir.

Needle nutrient concentration is most constant during January and February compared to other months and allows for needle sampling and fertilizer application with ample moisture for incorporation of fertilizer, so this is the preferred time to sample.

Which needles should be sampled or part of tree to sample?

For routine needle analysis, pinch five to eight needles of new or current season growth from six to eight locations on the upper 1/3 of the tree crown (see photo sequence). Never sample the tree leader. Include only needles—no buds, bark, stem wood, or lammas (summer flush) growth. Repeat this procedure on 20 to 30 trees. Trees should be of similar age, color and growth.

Collect needles that are free of disease or other damage if possible. Pick needles without breaking them and so that the bark remains on the tree.

Sample handling

Do not wash the needle samples. Put needles in a paper bag NOT plastic. Either air dry them or send them to a laboratory as soon as possible.

Additional Information

- A single sample should not represent more than 40 acres. Samples should come from areas of a field with common soil and tree characteristics.
- Tissue testing or needle analysis determines the total amount of nutrients present in needles at the time a sample is collected.
- If the purpose of foliar sampling is to diagnose a suspected problem, collect one sample from affected plants and another from apparently healthy plants.

Designing a sampling program

During the second or third year for Douglas-fir and the third or fourth year for noble fir, roots will begin to fill the soil as the trees grow rapidly. Christmas tree growers are interested in harnessing this rapid growth into a “frame” that can support the foliage of the Christmas tree. Foliar analysis is the primary tool for detecting nutrient deficiencies at this stage of growth. Inadequate nutrients at this stage can limit growth, so fertilizer applications are beneficial.

Annual sampling after mid-rotation is ideal for gathering nutrient status information. However, you may feel annual sampling is not necessary or financially feasible. This idea may truly be “penny wise and pound foolish” as the cost of a needle analysis is less than the value of two noble fir or three Douglas-fir trees. Not taking tissue samples or waiting until the year before harvest has the potential to allow problems to develop. A problem or “surprise” can delay marketing a year, adding an extra year production cost and delaying the start of the next rotation. Regardless of whether or not you sample every year, develop a plan for *regular* sampling.

One approach is to begin with fields that are not growing as desired. Annual sampling from these fields will be necessary until the problem is determined or corrected.

Divide the remainder of your acreage into two or three groups. Sample a group of fields each year. In this way, you will sample one-half or one-third of the acreage each year.

A minimum program involves sampling 1-2 years prior to harvest. Trends in tissue analysis values are important during the final years of a rotation to make decisions impacting color development and marketability. Take pre-harvest samples from Douglas-fir fields a year before harvest and two years before harvest for noble fir. Changes in nitrogen tissue analysis may not occur for 1 to 2 years after fertilizer application. More time may be needed to measure the result of fertilizer application when immobile materials (P or K) are applied to the soil surface.

Analyses

Consult Table 1 for analyses to request from a laboratory. Some foliar analyses commonly performed for other crops, such as copper, iron, and zinc, are not listed in Table 1. These nutrients have rarely been known to limit Christmas tree growth or color. They are not necessary for routine foliar analysis for Christmas trees. Repeat first or baseline sample analyses if any nutrients are initially low and you apply fertilizer to correct situation.

Table 1. Elemental nutrient analyses to request for each sampling time.

Nutrient element	Sample Frequency	
	First or Baseline	Annual
Nitrogen (N)	X	X
Phosphorus (P)	X	
Potassium (K)	X	
Calcium (Ca)	X	
Magnesium (Mg)	X	
Sulfur (S)	X	
Boron(B)	X	X ?

Interpreting laboratory results

Interpretation of laboratory results is a combination of philosophy and science tempered with experience and enhanced with a dash of artistry.

The values in Table 2 are based on needle samples taken as prescribed in this publication. Compare results from a laboratory analysis to the values in the Table 2. If results from your sample are above the values in Table 2, then the trees have an adequate supply of nutrients. Fertilizer application will not likely increase growth, color, or profit.

When tree growth is not adequate or tissue analyses are low, consider the possible reasons and actions listed below Table 2. If tissue analyses results from your sample are lower than values in Table 2, apply nutrients as described in the Christmas Tree Nutrient Management Guide.

If foliar nutrient levels are acceptable, but trees are performing poorly, the problem is not likely nutritional, but perhaps due to disease, insects, physical conditions such as poor drainage, or other causes, see *Above normal tissue analyses and weak growth* and *Other Considerations* sections below.

Table 2. Adequate nutrient concentration for Christmas tree production in western Oregon. Alphabetical order

Macro Nutrient	Douglas-fir	Noble Fir	Grand Fir*	Nordmann Fir (Denmark)
	%			
Calcium (Ca)	0.25	0.25	0.75	0.9
Magnesium (Mg)	0.07	0.07	0.12	0.05
Nitrogen (N)	1.6	1.4	1.9	1.4
Phosphorus (P)	0.15	0.15	0.18	0.16
Potassium (K)	0.6	0.6	0.6	0.5
Sulfur (S)	0.06	0.06	0.12	0.09
Micro Nutrient	ppm			
Boron (B)	15	15	35	Unknown
Copper (Cu)	3	3	3	Unknown
Iron (Fe)	Unknown	Unknown	Unknown	45
Manganese (Mn)	25	25	Unknown	50
Zinc (Zn)	10	10	25	15

*Grand fir values are a combination of data from Idaho where N, P, K, and S was added to trees with these nutrient concentrations and from unfertilized trees in western Oregon. Addition of fertilizer did not increase commercial value of Christmas trees in Idaho and western Oregon trees grew as expected and had sufficient color. These tissue concentration values are adequate as likely are lower concentration values.

Conifer nutrient concentration differs by whorl as shown in "Needle nutrient concentration change with whorl position." The upper whorls of conifers grown in a forest intercept most of the sunlight and have different nutrient concentration than lower whorls. Foresters sample upper whorls from trees. Nutrient concentration standards from only the upper whorl will not be the same as the standards in Table 2.

Review plant growth and yield from last season. Choose the combination of tissue analyses and crop growth listed below that corresponds to your situation. Follow the instructions given for the appropriate category.

Low tissue analyses and abundant growth. If growth is luxurious, don't apply additional fertilizer. This situation is usually caused by oversupply of N. Lower than adequate tissue nutrient concentrations are common with excessive growth. In this situation, low tissue nutrient concentration is caused by the nutrient content of the tissue being diluted by the intensive growth. This condition should correct itself when growth returns to normal. Therefore, do not apply extra fertilizer, especially N, to correct low tissue concentration in a situation of excessive shoot growth. A good target for lateral branch growth is 12 inches for Douglas-fir, 10 to 12 inches for Grand fir, 8 to 10 inches for Nordmann fir, and 7 to 9 inches for Noble fir.

Low tissue analyses and weak growth. If growth in general is weak, discolored, or stunted, apply fertilizer at rates recommended in this publication.

Normal tissue analyses and normal growth. If your tissue analyses are within the normal range, continue with your current fertilizer program.

Above normal tissue analyses and weak growth. If the trees are weak, discolored, or stunted, and the tissue analyses are above normal, look for stress from pests, drainage, drought, frost, or other factors limiting growth.

Above normal tissue analyses and normal growth. If your tissue analyses are above normal and growth is adequate or above normal, reduce the amount of fertilizer you have been applying, especially N.

Other considerations

Tissue analysis outside the normal range cannot always be attributed to your fertilizer program. Insufficient nutrient concentration can be caused by saturated or dry soils; high temperatures; frost; shade; weed, insect, or disease presence; or herbicide injury.

Several fungicides contain plant nutrients. Because tissue samples are not washed before analysis, high copper (Cu), manganese (Mn), or zinc (Zn) may be the result of fungicide residue. High boron (B) and Zn also may occur if liquid or foliar fertilizer was used.

Nutrient concentrations in Table 2 are for Noble Fir and Douglas-fir. Data for Figure 1 are from a project completed in 2006 that measured Douglas, Noble, Grand, Nordmann, and Turkish Fir needle nutrient concentration monthly for a year. The project did not establish critical levels or nutrient need. Contact an OSU county extension agent that works with Christmas trees if you are interested in this information.

For More Information

Hart, J., R. Fletcher, C. Landgren, D. Horneck, S. Webster, and M. Bondi. 2004. Christmas Tree Nutrient Management Guide for Western Oregon and Washington. Oregon State University Extension Service EM 8856-E. Corvallis, OR

FOR YOUR INFORMATION

New Publication Available
Mary Staben

A new online narrated presentation is now available to assist Spanish speaking pesticide applicators in enhancing their understanding of the weather-based causes of pesticide drift. This six-minute presentation offers valuable suggestions on how to determine when the weather is appropriate for pesticide application.

EM 8934-S-E, El Manejo de la Deriva de Pesticidas (Pesticide Drift Management), new December 2007, 6-minute Spanish-language audiovisual presentation, is available only online, no charge
Author: Paul Jepson
http://extension.oregonstate.edu/catalog/html/em/em8934-s-e/index.htm

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