Less fire, more science for Ore.'s grass growers

By Kathryn Barry Stelljes

CORVALLIS, Ore. — Farmers in the Pacific Northwest grew over a half-billion pounds of grass seed in 1995 — most in Oregon’s Willamette Valley. Several species of ryegrass, fescue and bluegrass make up most of the turf and forage crops. But growing the seed is getting tougher. After 1997, Oregon seed growers can use their most important farming tool — fire — only on a very limited acreage.

Field-burning each year after harvest controls weeds, removes leftover grass straw and destroys diseases, including growers’ nemesis, blind seed disease. Infected plants look normal, but many of the seeds won’t germinate.

“Blind seed disease was inadvertently introduced, most likely from New Zealand, in the 1930s,” said plant pathologist Stephen Alderman of the National Forage Seed Production Research Center, part of the USDA’s Agricultural Research Service (ARS).

“By 1944, about 50 percent of the seed fields were infected, and only 13 percent of the seeds in some ryegrass crops germinated. Burning fields between harvests completely controlled blind seed disease and is largely credited with saving the state’s grass seed industry,” Alderman said. In 1995, grass seed ranked fifth in agricultural production for the state, worth $236 million.

Jack Pimm, a third-generation grass seed grower, heard his grandfather and father talk about blind seed disease when he was a child. But in 1995, he saw the devastation first hand in his field near Halsey.

“Only 70 to 75 percent of the seed germinated. That was unheard of,” he said. The seed was from Pimm’s 1994 crop, grown in a field that had not been burned for six years. Through the Oregon State University Extension Service, Alderman heard of the problem and came in to help discover the cause.

“Sure enough, we had blind seed disease,” Pimm said. To stop the disease in its tracks, he burned four of his fields and adopted new management techniques. Fortunately, Pimm was able to sell his seed — but at a substantial loss.

If field burning is so effective, why are growers phasing it out?

As the valley’s population expanded in the 1960s, residents began to complain about the smoke-filled summer air. But it was a tragic accident that set the stage for changing growers’ management practices.

“In 1988, smoke from a wildfire — believed to have started when the wind blew burning grass straw out of control — spread throughout the valley. The state stepped in and began divulging documents on any fax machine. Product information will be promptly sent directly to a fax machine. Customers can receive product labels, Material Safety Data Sheets and Worker Protection Standard requirements for products currently offered by Zeneca Professional Products.

FACTS FROM ZENeca FAX LINE

WILMINGTON, Del. — Pest-control and turf-management product information from Zeneca Professional Products is now available by facsimile. Call 1-800-640-2362 toll-free, 24 hours a day, seven days a week, for quick retrieval of documents on any fax machine. Product information will be promptly sent directly to a fax machine. Customers can receive product labels, Material Safety Data Sheets and Worker Protection Standard requirements for products currently offered by Zeneca Professional Products.

King, Ideal reach patent deal

ST. CHARLES, Mo. — Herb King, president of King Safety Products of St. Charles, and David Juday, chairman of IDEAL Industries, Inc. of Sycamore, Ill., have reached an agreement to settle the patent infringement lawsuit filed by King against IDEAL in February 1996.

While details of the final agreement are confidential, King and IDEAL will each manufacture and sell several sealant-filled connector products under King’s U.S. Patent B1 5,113,637 and any related North American patents.

The 637 patent remains in force, and relates to twist-on electrical connectors prefilled with non-hardening sealants. Such connectors are suitable for a variety of direct burial; wet, corrosive and aluminum to copper applications.

Both Herb King and David Juday are pleased with the amicable settlement and look forward to working together for broader application and increased acceptance of prefilled twist-on connectors in a variety of markets.

Golf Course News
Field burning

Continued from page 53

covered Interstate 5 south of Salem,” said David Nelson, executive secretary of the Oregon Seed Council. “A chain collision resulting in several deaths and injuries mobilized the industry, legislators, and the public to negotiate a phase-down of field-burning.”

Before 1991, growers burned up to 250,000 acres per season in the valley. The allowable burned acreage has decreased incrementally since that time and will be limited to 40,000 acres, plus up to 25,000 acres of steep terrain as identified by the Oregon director of agriculture.

Grass seed farmers in eastern Oregon, Washington and Idaho may face similar restrictions in the future. At first, growers worried that instead of diseases and weeds, their businesses would go up in smoke.

“The industry was very uncertain it would be able to make the change,” Nelson said. Alderman and other ARS, university, state and private researchers are helping grass growers produce a viable seed crop.

“Now there’s a feeling of confidence that we’ve solved enough of the problems to produce the same quality of grass seed without burning all our fields,” Nelson said. “ARS has greatly helped the industry make that transition.”

But the challenges are ongoing: the return of diseases, contamination of the seed crop by weeds, and a million tons of straw left each year after harvest.

ARS scientists are working hard on all three fronts. Alderman has monitored fields since 1988 to detect flare-ups of blind seed and ergot, another serious fungal disease that also destroys flowers and seeds.

“Early detection and treatment are very important to prevent the sudden increase and spread of diseases,” he noted. No chemical treatments effectively control these diseases, but Alderman said specific plowing and planting techniques should keep them largely at bay without routine burning.

Two new lines of tall fescue will help growers combat another disease, stem rust. This rust attacks the stems and leaves, rather than the flowers, and can reduce seed yields by as much as 80 percent, said ARS plant pathologist Ronald E. Welty, who is retired, developed the fescue lines.

“Increasing the number of plants in a variety that are resistant to stem rust can stop or slow development of a disease epidemic,” says Barker.

Managing weeds, certifying seed

Unlike most crops, grass is often its own worst weed. “Grass plants are not neat and tidy like wheat or corn,” said ARS agronomist George W. Mueller-Warrant. “Tillers and seeds on the same plant mature at different times, and there’s no way the grower can get all the seed to the same ripeness simultaneously.”

Growers time their harvest to get the best yield. But previously ripened seed heads that have shattered and tiny seeds that fall through the combine can mean that up to one-fourth of the total seed production lands back on the field.

“Many of the grass seed crops are perennial, and anything that germinates among the established plants is undesirable,” Mueller-Warrant said.
Field burning
Continued from previous page

About half of Oregon's seed is produced under a certification process managed by Oregon State University.

To participate, growers submit requests for each field they want certified. Then the Certification Service reviews crop production records and conducting a series of field and laboratory evaluations. If the field meets the review criteria, it can be certified.

"The industry has more than 1,250 varieties of grass seed eligible for certification, and about half of those were in production in 1996," said Ronald Cook, head of the Oregon Seed Certification Service. "Our job is to ensure that the customers are getting the variety and product performance that they are expecting."

Growers, in turn, can command higher prices for their seed and reach expanded markets by growing certified seed.

One obstacle to certification is genetic contamination. If a seed falls off the grass plant and germinates, it is the progeny of the original plant. "These 'children' are weeds," said geneticist Barker. He notes that grass is wind-pollinated, so the parent and seedling are easily crossed. "This crossing may cause unwanted genetic shifts."

Cook said that in most crops, more than 1 or 2 percent genetic contamination can jeopardize certification.

The reasons are genetic. To participate, growers need good writing and good arithmetic.

This publication gives you good reading, good writing and good arithmetic.

We present the information in our articles clearly, accurately and objectively. That's good writing. Which means good reading.

We present the information in our circulation statement clearly, accurately and objectively. That's good arithmetic.

BPA International helps us provide precise and reliable information to both advertisers and readers.

An independent, not-for-profit organization, BPA International audits our circulation list once a year to make sure it's correct and up to date. The audit makes sure you are who we say you are.

This information enables our advertisers to determine if they are reaching the right people in the right marketplace with the right message.

The audit also benefits you. Because the more a publication and its advertisers know about you, the better they can provide you with articles and advertisements that meet your information needs.


270 Madison Avenue, New York, NY 10016, 212-779-3200.
Field burning
Continued from page 58 of next year's crop.

Unless the straw is removed from the crowns of perennial grass plants, the crowns don't receive enough light, Elliott says.

"Before our experiments, it was believed that you would have to add nitrogen before the straw would decompose. There was also concern that the compost wouldn't reach high enough temperatures to kill weed seeds and inhibit diseases," Elliott notes.

Growers discovered that they could also leave the straw on the field to decompose in place, if they chopped it fine enough that the grass crowns weren't covered. Another ARS research project addresses the variation in crop needs and environmental conditions across the Willamette Valley and drier grass-growing regions of the Pacific Northwest.

"The southern part of the valley has poorly drained soils that are very wet in winter," says Elliott. "These agronomists are continuous." He's coordinating a long-term sustainable cropping systems program with scientists and ARS, Oregon State University, and the USDA's Natural Resources Conservation Service; extension specialists; and growers.

The south valley supplies most of the annual and perennial ryegrass seed. The moderately drained soils to the north allow more crop diversity, and growers farm tall fescue seed as a major crop. Well-drained hilly areas produce fine fescue seeds, but these soils erode easily if not managed properly.

In each of the three regions, Stein and colleagues are looking at the best methods for managing straw (cutting and leaving on the field versus removing the straw), rotating crops (grass seed continuously this year. But the study has already provided valuable information for growers.

The first complete crop rotation will end this year. But the study has already provided valuable information for growers. The south valley supplies most of the annual and perennial ryegrass seed. The moderately drained soils to the north allow more crop diversity, and growers farm tall fescue seed as a major crop. Well-drained hilly areas produce fine fescue seeds, but these soils erode easily if not managed properly.