

Open Field Burning In the Willamette Valley

Background

[The Oregon Department of Agriculture \(ODA\) Smoke Management Program](#) regulates the burning of up to 65,000 acres of annual and perennial grass seed crop residue and cereal grain residue within the Willamette Valley each summer.

Field burning disposes of leftover straw and stubble on fields after grass seed harvesting. It controls weeds, insects and plant diseases which helps maintain grass seed purity, reduces use of pesticides and herbicides, and improves yields. The practice began more than 50 years ago, with as much as 250,000 acres being burned in the mid-1980s.

A 1988 accident on Interstate 5 involving multiple cars and causing seven fatalities was attributed to decreased visibility due to field burning smoke. This led to passage of House Bill 3343, which called for the phase-down of field burning from 250,000 acres to the current 65,000 acres. Currently, the state's Smoke Management Program affords greatest protection to the Willamette Valley's major population centers, but offers lesser protection to some smaller population areas.

Quick Facts:

- *The phase-down of field burning occurred from 1991 to 1998, with the acreage limit reduced from 180,000 down to 40,000 acres. The current limit of 65,000 is based on 40,000 acres plus a 25,000-acre limitation for certain fire-dependent grass species and grasses grown on highly erodible soils on steep slopes.*
- *Although state law allows the burning of 65,000 acres, over the past five years actual burning has averaged about 50,000 acres.*
- *Field burning typically starts mid-July and ends mid-October, with a majority of burning in August/early September. Most fields are not burned every year.*
- *To avoid smoke impacts in populated areas, burning is permitted only after careful evaluation of weather conditions using the latest meteorological forecasting techniques.*
- *About 75% of all the acreage is burned on just 10 to 15 days during the summer.*
- *Currently there are about 150 growers who burn in the Willamette Valley.*

- *The Smoke Management Program is funded exclusively through grower fees.*
- *In 1995, ODA was directed by House Bill 3044 to operate the entire field burning program, through a contractual agreement with DEQ.*

Health effects from smoke

Field burning smoke is comprised of several pollutants that have the potential to cause health problems, depending on the level and duration of exposure. Field burning smoke contains fine particulate matter, which can be inhaled deep into the lungs. In addition, field burning smoke contains carbon monoxide and carcinogenic compounds such as polycyclic aromatic hydrocarbons, benzene, aldehydes and metals.

While efforts are made to conduct burning under optimum smoke dispersal conditions, some field burning smoke impacts do occur. However, these impacts rarely cause air quality to exceed the federal fine particulate health standard. This is because most field burning smoke impacts are of relatively short duration, and occur during the summer months, when particulate air pollution levels are generally much lower than they are in winter months.

Although field burning is unlikely to cause violations of federal health standards, exposure to field burning smoke can still pose health risks. Short-term exposure can cause health problems for people with pre-existing respiratory problems (e.g., asthma, bronchitis and chronic obstructive pulmonary disease), or to sensitive populations such as young children and the elderly.

For the general public, short-term exposure to smoke may result in eye irritation, scratchy throat, runny nose, headaches, and allergic reactions. While little is known about the long-term health effects from exposure to field burning smoke, some research has shown health effects can range from reduced lung function to development of chronic bronchitis, and even premature death.

The Oregon Department of Agriculture, in conjunction with researchers at Oregon State University, is currently planning to conduct a human health risk assessment of field burning in the Willamette Valley. This assessment will help



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Alternative formats:
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characterize exposure and risk in affected communities.

Visibility effects from smoke

In addition to health effects, smoke can affect outdoor recreation activities and impair visibility or the ability to view nearby mountains and other scenic areas. Federal visibility protection rules require states to adopt smoke management plans that address outdoor burning practices like field burning and forestry burning.

The phase down in Willamette Valley field burning over the years has led to some improvements in summertime visibility in Oregon's wilderness areas and Crater Lake National Park. This improvement can also be attributed to weekend restrictions on field burning, which are in place from July 1 through Sept. 15, to protect visibility in the Oregon Cascades during the highest visitation and recreation use period.

Alternatives to field burning

In addition to smoke management, ODA manages research and development into alternatives. This includes finding ways to maintain high yields without burning, straw removal and marketing, and alternative crops. Alternatives to field burning are currently practiced throughout the Willamette Valley. These include crop rotation, chemical applications, straw removal and propane flaming. The baling and selling of grass seed straw has become an important agricultural commodity. The straw is sold all over the world as an animal feed supplement and for other uses.

Grant funding from ODA and the Oregon Seed Council (OSC) is used for research into alternatives to field burning. In 2006, ODA and OSC distributed approximately \$370,000 for "Alternatives to Field Burning" research projects. ODA and OSC have funded an average of \$319,000 annually in research projects since the 1999-2000 funding cycle. State tax credits are also used to provide equipment and infrastructure to promote alternatives to burning.

Minimizing smoke impacts from burning

For the 65,000 acres currently allowed for burning, ODA controls the time, amount and location of burning in order to avoid smoke intrusions into cities or impacts on the public. The best conditions for burning are when smoke rises to high elevations, disperses, and is transported away from major populated areas. This practice makes the smoke plume visible from long distances, often causing public reaction and complaints, but actually minimizes ground smoke impacts to the public.

Quick facts:

- *Growers are required to register their fields and obtain burn permits. Permits require being able to light a field within one hour. This helps ensure that the burning takes place when conditions are still favorable.*
- *Growers must follow specific burning instructions issued by ODA. ODA also maintains an enforcement program which can result in fines for violations of program rules.*
- *Growers must also meet fire safety requirements set by the State Fire Marshal.*
- *ODA uses state-of-the-art weather forecasting techniques and computer models to determine geographic locations where fields can be ignited to minimize the smoke impact on the public.*
- *Other elements of the program include a network of air monitors placed in major population centers throughout the Willamette Valley, to track air quality and smoke impacts.*
- *The program is staffed full-time by a program manager, program coordinator and meteorologist. Seasonally, the program employs two inspectors and two field coordinators.*

Complaints about field burning

ODA operates two field burning complaint lines, which are available to the public year-round. The Salem number is for callers in the north Willamette Valley; the Eugene number is for callers in the south portion of the Valley.

Salem Complaint Line: (503) 986-4709
Eugene Complaint Line: (541) 686-7600

Comments and complaints provide supplemental information on the extent and location of smoke problems. Callers may receive a tape recording asking the caller to leave a message describing the smoke problem. Complaints are compiled weekly and reported to the Governor's Office. In 2006, ODA received 1,182 complaints, up slightly from 2005's total of 1,106. In previous years the numbers of complaints were as follows: 2004 (275), 2003 (206), 2002 (705), 2001 (608).