

THE BELOW IS PROVIDED BY SYNGENTA ENVIRONMENTAL STEWARDSHIP

Disposal of Seed Treatment Products and Treated Seed

Always follow federal, state, tribal and local regulations. Do not use treated seed for food, feed, or oil production.

Small Quantities of Pesticide-Treated Seed

The best way to dispose of a small quantity of leftover seed that has been treated with a pesticide is to plant it in fallow or other non-cropped areas of the farm. Note that treated seed may be hazardous to wildlife and must be planted according to seed bag instructions.

Whether or not the seed is being planted as potential wildlife habitat, it is important to use the same practices and precautions that you would use when planting treated seed to produce a crop:

- 1) Use an agronomically acceptable seeding rate, using normal practices for that crop (for example, local planting dates and soil temperatures) as recommended by your county agricultural extension agent.
- 2) Plant treated seed at a depth greater than 1 inch (2.5 cm). If the seed is broadcast on the soil surface, incorporate it immediately.
- 3) Immediately cover small quantities of treated seed that are spilled during loading and in areas such as row ends, and plant seed away from bodies of water. Collect larger quantities of spilled seed.
- 4) Do not sow seed around the headland, in a field, or in a non-cropped area in any way that results in double sowing, exposed seed, and/or a greater chance of off-target movement of the pesticide. Do not use higher than normal seeding rates, even if no rotational crop is planned.

If treated seed no longer has acceptable germination for the intended use, possible options include 1) disposal in an approved municipal landfill, 2) use as a fuel source for power plants or cement kilns, 3) high temperature incineration by a waste management facility, or 4) fermentation in an alcohol-producing process at an ethanol plant. ***Excess treated seed may be used for ethanol production only if (a) by-products (distillers grains, mash, etc.) are not used for livestock feed and (b) no measurable residues of pesticide remain in ethanol by-products that are used in agronomic practice.***

See details under “Large Quantities” and contact the specific facility to determine if it can accept pesticide-treated seed.

Disposal of Bags that Contained Treated Seed

Used seed bags may contain treated seed dust or treated seed. Always check state and local regulations prior to disposing bags which contained treated seed.

In the absence of specific regulations:

- Used treated seed bags may be burnt as a fuel for power or industrial heat generation.
- Used bags may be incinerated either in a permitted hazardous waste incinerator or municipal solid waste incinerator with appropriate air emissions control equipment.
- Landfills may be used as a last resort and only in a lined landfill with leachate collection and treatment - at a minimum, a Subtitle D municipal solid waste landfill
- Do not recycle used seed bags that contained treated seed.

Large Quantities of Pesticide-Treated Seed

For disposal of large quantities of leftover treated seed that cannot be planted as described above, contact the pesticide manufacturer if you need more information than what is provided below.

Consult first with your state and local authorities to ensure that you are in compliance with appropriate regulations. Contact information for state and territory pesticide regulatory agencies can be found at <http://www.aapco.org/officials.html>.

There are a variety of industries that may be able to dispose of treated seed. However, a definitive answer on whether a municipal landfill, power plant, cement kiln, waste management facility, or ethanol plant will take seed treated with a particular pesticide can only be obtained by contacting the specific facility.

1. Disposal in an Approved Municipal Landfill

Disposal in approved municipal landfills is permitted in some states. However, landfill disposal is costly and usually not practical for large volumes of treated seed; and permits may be required.

If disposal is the selected option, seed treated with pesticides may be handled as normal solid waste or as hazardous waste, depending on the active ingredient (<http://www.epa.gov/epawaste/hazard/index.htm>).

Seed treated with Syngenta active ingredients (abamectin, azoxystrobin, difenoconazole, fludioxonil, fluxofenin, mancozeb, mefenoxam, and thiamethoxam), and resultant seed dust, are not classified as hazardous wastes under 40 CFR.261 - Identification and Listing of Hazardous Waste. Note that states may have more stringent regulations. Seed treated with Syngenta active ingredients, and resultant seed dust, are subject to solid waste regulations at the state and local levels. Always check state and local regulations prior to disposing of treated seed or dust.

For transport purposes, seed treated with Syngenta active ingredients are classified as "Dirt, Grain, Seeds Contaminated with Pesticides/Non-DOT Regulated, Non-Hazardous Waste". This classification is applicable within the continental United States and is not applicable to international, ocean shipments.

If Syngenta seed treatment products are combined with other active ingredients, they may need to be classified differently. Check the status of each active ingredient regarding its waste classification status before committing to a disposal process.

The contacts for both solid and hazardous waste disposal in each state can be found at <http://www.epa.gov/epawaste/wyl/stateprograms.htm>.

2. Use as a Fuel Source for Power Plants or Cement Kilns

There are a variety of power plants that utilize alternative fuels. [This list of power plants](#) utilizing biomass, municipal solid waste, or non-fossil waste as an alternative fuel is extracted from the EPA National Electric Energy Data System (NEEDS) v3.02 ARRA, available at: <http://www.epa.gov/airmarkets/progsregs/epa-ipm/docs/NEEDSv302ARRA.xls>

Cement kilns can be located at <http://www.ckrc.org/index.shtml>.

3. High Temperature Incineration by a Waste Management Facility

Contact the waste management facility to determine if it can accept treated seed. Note that this is likely to be an expensive option.

4. Fermentation in an Alcohol-Producing Process at an Ethanol Plant

In addition, some ethanol plants **may** be able to use treated seed as an alternate power source.

A map and lists of ethanol plants in the US and Canada is provided by Ethanol Producer Magazine on its website at www.ethanolproducer.com. Direct links are:

<http://www.ethanolproducer.com/plants/listplants/USA/> List of ethanol plants in the US

<http://www.ethanolproducer.com/plants/listplants/Canada/> List of ethanol plants in Canada

<http://www.ethanolproducer.com/plants/map/> U.S. & Canada Fuel Ethanol Plant Map

What NOT to Do with Pesticide-Treated Seed or By-Products

1. Composting

Composting is **NEVER** recommended for pesticide-treated seed.

2. Spreading and Incorporating into Soil at Higher than Normal Seeding Rates

Spreading and incorporating (by disking, etc.) at higher than normal seeding rates is **NEVER** recommended for treated seed, even with proper incorporation (soil coverage). It is important to contact the pesticide manufacturer(s) to determine if spreading and incorporating may be possible under the specific set of circumstances (active ingredients, pesticide and seed rates, previous and future crops, etc.)

3. Land Application of Wastewater That Has NOT Met Local Standards, from Facilities Accepting Treated Seed

Land application of resultant wastewater that has **NOT** met local standards is **NEVER** allowed. Minimize wastewater by process recycling and dispose of any remaining material as a non-hazardous waste, e.g. by solidification and disposal in a Subtitle D landfill (www.epa.gov/osw/nonhaz/municipal/landfill/criteria/landbig.pdf) or incinerator. Alternatively, there are systems for treating pesticide containing liquid wastes by flocculation/filtration to remove solids,

which still have to be disposed of as a waste, followed by carbon treatment, which could allow the reuse of the water. Comply with all applicable environmental regulations.

It may be feasible, in certain situations, to apply wastewater and/or solid waste to fields, with strict regulatory oversight and accurate pre-analysis that guarantees that any pesticide residues are within acceptable limits.

4. Use of Ethanol By-Products as Feed or in Agronomic Practice

Excess treated seed may be used for ethanol production only if (a) by-products (distillers grains, mash, etc.) are **NOT** used for livestock feed and (b) **NO** measurable residues of pesticide remain in ethanol by-products that are used in agronomic practice.

5. Burning in a Wood or Corn Stove used in the Home or Shop for Heating or Cooking

NEVER burn pesticide-treated seed in a wood or corn stove used in the home or shop, for any purpose (heating, cooking, etc.) The hazards and risks from burning pesticide-treated seed in this way are unknown.

In Summary

The best way to deal with the disposal of treated seed is to minimize the amount that needs to be discarded.

When excess treated seed cannot be planted, government regulations, the willingness of the pesticide manufacturer to perform detailed residue analyses, and the interest of the disposal facility will have great impact on what disposal methods can be utilized.

In case of uncertainty or in the absence of government approval of a disposal method, high temperature incineration is the most appropriate method.

For More Information:

The International Seed Federation website has information on how to minimize the production of, and disposal of, excess treated seed.

For more information about treated seed disposal, contact your Syngenta Seed Care Sales Representative.