

Industry Guidelines for the Disposal of Seeds Treated with Crop Protection Products

Prepared by
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Guidelines and their Objective

This paper has been developed in response to numerous questions about the disposal of treated seeds that are no longer fit for the intended purpose of planting. The subject of treated seed disposal is a difficult one to address because the products and the relevant regulations are so diverse.

The objective of this paper is to outline disposal options that minimize the environmental impact and are sustainable. It provides guidelines, particularly for situation without relevant regulations. In any case, disposal options of treated seeds depend on the crop protection product involved and should therefore be discussed with the respective Crop Protection company and relevant authority. This paper is primarily directed at Seed Handlers but the concepts apply to farmers who may find themselves with obsolete seeds.

This paper is not in anyway intended to serve as a legal reference. FIS does not accept any liability for decision taken with reference to this document.

Background

Seed-borne and early season diseases and insects can pose devastating consequences to crop production if not managed. Seed Treatments have played and are still playing a significant role in the history of humankind and in improving the establishment of healthy crops leading to better yields.

Seed treatments are the use and application of biological, physical and chemical crop protection products and techniques used with seed that provide seed, seedling and plant protection during the establishment of crops.

The addition of crop protection products or other additives makes the seed into a material that needs to be handled with the appropriate care in line with existing regulations. Should the treated seed become unsuitable for the intended use, disposal has to follow these regulations where they exist. Where no regulation exists, these Guidelines may be used for developing sustainable solutions.

Government Regulations

A Seed Handler should view national and local government agencies that regulate the disposal of treated seeds as their advisor. It is imperative that the Seed Handler knows and understands the laws and regulations associated with the application and disposal of treated seed products. Negligence in following these laws may and have resulted in fines, penalties and imprisonment.

By developing a good working relationship with government agencies, a Seed Handler will have a good chance to find pragmatic, sustainable solutions acceptable for all stakeholder for situations with missing regulations. In addition, such relationships allow to participate in the development of new regulations and promote new avenues of disposal. Working together is the best way to guarantee transparency, achieve best possible processes and assure protection of the environment.

Best Practices for Seed Production

The best way to deal with the disposal of treated seed is to minimize amount of treated seeds that need to be discarded. Some of these best practices are described in the Industry Guidelines for Good Use Practices and Standard Requirements in the use of Seed Treatments brochure published by FIS in 1999.

Seed Handlers should consider a “Total Quality Management” approach to seed treatments. This would include steps such as rationalising the sales forecasts and production process and moving to “just in time” treatment to minimize the amount of seed treated but never planted.

Product Identification and Tracking

Seed Handlers should take a “cradle to grave” approach in the area of identifying and tracking of seed treatment materials. This would be an active tracking of all seed treatment product quantities purchased, the active substance amounts applied to each seed batch and the final destination of those seed batches. This tracking would include any amounts of seed treatment products that end up as dust or fluids and need to be handled separately from the seed. Such a “best practice” approach is increasingly part of the regulatory expectations in many countries.

Records in this area may include but are not limited to documents such as purchase orders, treatment work orders, treatment records, packaging records, seed batch characteristics records, seed labelling, seed shipment documents, final destination certificates, contracts with Disposal Agents and copies of environmental permits from the Disposal Agents.

Validation of the Disposal Agents

There maybe a number of different options for the disposal of treated seeds. As stated earlier, these options are dependent upon the local and national regulations and the seed treatment product being used.

In all cases, the Seed Handler should validate the Disposal Agents' authorisation and capabilities for handling the materials to be discarded.

The following is a checklist of issues to consider:

- 1) Ensure the Disposal Agent has all the necessary national and local environment permits to accept and handle the materials you are disposing.
- 2) Regardless of the permits, consider the environmental impact (air, water, soil) of this disposal method and ensure you are satisfied with this option compared with alternatives.
- 3) Ensure the Disposal Agent has adequate systems in place to provide a safe and healthy work environment.
- 4) Determine the volumes/capacity of the facility and their schedule for accepting product versus your requirements
- 5) Determine what security measures and controls the operation has in place to ensure the material is disposed as agreed upon.
- 6) Develop a contract with the Disposal Agent that identifies the responsibilities of each party in the event of misuse or mishandling of the treated seeds by the Disposal Agent.

Disposal Options

The following is a list of potential disposal options. The use of these options is dependent upon the material being discarded along with the national and local regulations. Seed Handlers should work with their crop protection product manufacture to define and calibrate the most appropriate disposal options. This

list is provided only as a starting point for a discussion with the appropriate regulatory authorities and is not ranked in any priority order.

1) Waste Management Facilities for Incineration

There are authorised hazardous waste facilities that accept these kinds of materials and incinerate the products. This is an option proposed in most European countries and in North America for instance.

Advantages:

- These organisations are in the business of handling hazardous waste and therefore should have an adequate process for handling treated seed discard.
- These organisations have on-going relationships with the appropriate government authorities and generally have the suitable environmental permits.
- These types of facilities generally have a good system with accurate and reliable record keeping.

Disadvantages:

- These hazardous waste facilities generally have rather high fee structures. Often these fees are based on the weight of the material disposed. Since the active ingredient of the seed treatment product is a very small part of the total mass of the treated seed, the Seed Handler pays a high price for a relatively small amount of material.

2) Waste Management Facilities for Sanitary Landfill

There are authorised hazardous waste facilities that accept these kinds of materials for burial in a sanitary landfill. This option is possible for instance in USA.

Advantages:

- These organizations are in the business of handling hazardous waste and therefore should have an adequate process for handling treated seed discard.
- These organisations have on-going relationships with the appropriate government authorities and generally have the suitable environmental permits.
- These types of facilities generally have a good system with accurate and reliable record keeping.

Disadvantages:

- These hazardous waste facilities generally have rather high fee structures. Often these fees are based on the weight of the material disposed. Since the active ingredient of the seed treatment product is a very small part of the total mass of the treated seed, the Seed Handler pays a high price for a relatively small amount of material.
- Disposal of hazardous waste in landfills may require special packaging that will increase costs.

3) Incineration for Power

It may be possible to have the discard seed incinerated by a power plant or a concrete kiln. This option is possible for instance in Germany or USA.

Advantages:

- Since the seed will convert to energy for the incineration facility, the cost of this disposal is relatively low as compared to a hazardous waste facility. Some facilities may actually pay the Seed Handler for the materials delivered
- These operations generally operate at very high temperatures and the incineration of material is complete.
- The seed is a renewable energy resource to replace hydrocarbon fuels.

Disadvantages:

- These types of facilities are generally not in the business of handling waste materials and may not have all of the appropriate controls and permits. The Seed Handler would need to ensure all the appropriate permits are issued before this outlet can be utilized.
- There may be some additional handling and transportation costs.

4) Alcohol Production

It may be possible to run some treated seeds through alcohol production facilities that are using their final product for fuels. This is currently practiced in Brazil.

Advantages:

- The treated seeds are used to create alcohol that will substitute for hydrocarbon fuels.
- It is possible to have this as a closed process where the by-products of the alcohol production are used to generate power for the process through incineration.

Disadvantages:

- Transportation costs may be high depending upon the proximity to the alcohol production plant.
- These types of facilities are generally not in the business of handling waste materials and may not have all of the appropriate controls and permits. The Seed Handler would need to ensure all the appropriate permits are issued before this outlet can be utilized.

5) *Composting*

It may be possible to compost the treated seed and allow biological systems to breakdown the crop protection products into a non-hazardous state. For instance, the composting is a disposal method in development in France.

Advantages:

- Composting puts the material back to a good use as a soil supplement.
- Composting can be decentralized so transportation costs should be low.
- Composting in the seed treatment premises and agricultural enterprises constitute an internal cycle for hazardous waste management, an evident sign for sustainability.

Disadvantages:

- The cost of using a composting service may be quite high.
- There may be variability in the time and conditions that ensure the breakdown of the seed treatment material from one product to another. Seed Handlers should contact the crop protection manufacturer for data on the rate and conditions for degradation, if available.
- This disposal method should not be used in case potential run off on leaching cannot be totally managed.
- The Seed Handler needs to ensure all the appropriate permits are issued before this method can be utilized.

Alternative Uses

These alternative uses must follow the registration guideline of the respective crop protection product.

1) Green Manure Crops

It may be possible to plant the treated seed on parcels of land and incorporate the germinated and emerged materials into the soil.

Advantages:

- This process is clean, safe and effective.
- This process is very close to the intended purpose of the seed.
- The costs of this disposal method will be relatively low.
- This process restores some organic matter content and improves the soil structure.

Disadvantages:

- There is a maximum allowable amount of crop protection product that can be placed on a given hectare in a given period of time. This may be as low as the maximum allowable labeled rate per hectare for the seed treatment product and required surface area for this disposal method could be vast.

2) Wildlife Habitat Seed

It may be possible to provide substandard or obsolete seed to various organizations that would plant crops for wildlife habitat. This is for instance currently practiced in USA.

Advantages:

- The seed is being used for its intended purpose of planting.
- In many cases providing wildlife habitat is positive for the public good.

Disadvantages:

- There will likely be additional handling costs associated with this activity.
- There may be limited quantities of some seed species needed by wildlife associations.
- There is the potential for abuse of this type of program (reselling the seed, inappropriate discard, planting into sensitive areas and subsequent issues, etc.).

For all listed options, the disposal option has to be transparent. Consultations with the manufacturer of the involved Crop Protection product is a prerequisite and agreement of authorities a necessity. In case of doubt or in absence of official approval of a disposal method, incineration as described under option 1 is the most appropriate way.