

Waste Management FACTSHEET



Order No. 383.100-3
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TEMPORARY FIELD STORAGE OF SOLID AGRICULTURAL BY – PRODUCTS

"TEMPORARY FIELD STORAGE": *the storage of solid agricultural by-products or wood residue outside in a field, but not in a structure, before their use or disposal.*

"AGRICULTURAL BY – PRODUCTS": *includes manure, soiled animal bedding, dropped or spoiled feed or silage, agricultural vegetative debris, product of an agricultural composting process, used mushroom-growing substrate, and soilless media.*

INTRODUCTION

The above definitions are taken from the *Code of Practice for Agricultural Environmental Management* (the Code) contained in the *Environmental Management Act*. The Code describes practices for managing agricultural by-products in an environmentally acceptable manner.

Agricultural by-products, when properly used, can be a valuable addition to a farming operation's resource system. They can be an excellent fertilizer, improve soil characteristics by adding organic matter, and in some instances (e.g. manure) may contain a vast array of organisms that add to the biological activity of soils. However, when not managed with sufficient care, the nutrients and bacteria can be a major source of pollution to watercourses (ditches and streams) and domestic water supplies (wells and groundwater).

The Code explains that agricultural by-products **must** be stored:

- in a permanent storage structure;
- as field storage, or
- under the pens of fur bearing animals

This factsheet will deal with **field storage** of solid agricultural by-products.

STORAGE PERIOD OF AGRICULTURAL BY – PRODUCTS

There are two distinct field storages described in the Code. A **short-term** storage of less than two weeks and a **long-term** storage from two weeks up to seven months. The short-term storage is used when solid agricultural by-products are delivered to field storage and will be used as a fertilizer within two weeks of arrival. There must be a reasonable setback from the storage site to a watercourse and by-products should not be left on creek banks or slopes that lead to a creek bank. Field storage must not occur in fields that are prone to flooding or in areas with standing water or water-saturated soils. When properly located and used only during the dry times of the year, there is a low potential for leachate and runoff occurring. If leachate is generated during storage, it must be contained.

When storing by-products in the field, the storage piles need to be monitored on a weekly basis to ensure compliance with the Code. In this scenario, monitoring means checking on your pile on a weekly basis to ensure that the requirements of the Code are being met and recorded (e.g., runoff is diverted, leachate is not escaping, etc.).

The following setbacks need to be met for short-term and long-term field storage

	Drinking Water Source (m)	Watercourse (m)	Property Boundary (m)
Less than 2 weeks	30	15	4.5
2 weeks or more	30	30	4.5

Once the field-stored materials are used or moved, vegetation must be grown where field storage occurred by the next growing season. If the field storage occurs for longer than 2 weeks in the same location, field storage may not occur in that location for at least 3 years.

To keep solid agricultural by-products from causing pollution, diverting runoff from the storage area as well as keeping the pile out of any surface water and covered is the key to minimizing leachate.

COVERED FIELD STORAGE

In areas of the province, including the Fraser Valley and Vancouver Island, that receive a total average precipitation greater than 600 millimetres (24 inches) during the months of October to April inclusive, field stored solid agricultural by-products **must** be covered from October 1 to April 1 to prevent the escape of agricultural by-products that cause pollution.

Covering can be as simple as a tarp or plastic cover or as elaborate as a roof. Often agricultural by-products become available for spreading on the land at a time when the nutrient value cannot be put to work. For example, the land is too wet to get onto, the crop or pasture is not growing, the risk of water running off the field is too great, etc.

VULNERABLE AQUIFER RECHARGE AREAS

Vulnerable aquifer recharge areas are defined by the Code and refer to areas where surface water may infiltrate the ground to reach an aquifer that

- is vulnerable to pollution or contamination, or
- is, or is at risk of being, adversely affected by nitrates

In these areas, if storing in the field for 2 weeks or more, storage piles cannot be located over soils with

a saturated hydraulic conductivity of more than 10^{-3} cm/s, otherwise known as coarse-textured soils.

RECORDKEEPING REQUIREMENTS

When using temporary field storage as a means to store agricultural by-products, it is required that the following items are recorded:

- type and source of materials being stored
- location of the temporary field storage
- weekly monitoring results

PROCEDURE FOR FIELD STORAGE

The following is a procedure for proper agricultural by-product storage where the length of storage includes the months of October through April and the rainfall is greater than 600 millimetres (24 inches). It is simple and requires little time.

- Select a location for the pile that is above the winter high-water level and is more than 30 metres (100 feet) from the watercourse.
- Windrow the agricultural by-products. If a single row is longer than 25 metres (83 feet) it may be beneficial to place two rows side by side. Strike off the tops of the windrows. If there are two windrows, fill in the gaps between them (see Figure 1).

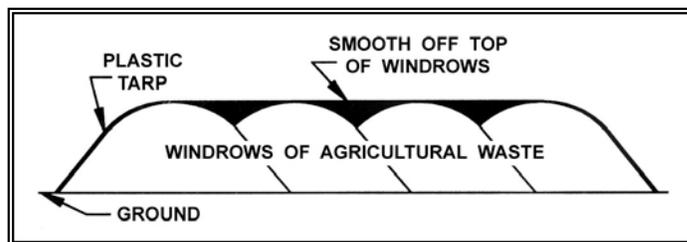


Figure 1 Windrows of Agricultural By-Products

NOTE: This step is important. If it is not done, water will collect in the pockets and it will be hard to remove the protective plastic cover that goes on next.

- Arrange 6 mil black plastic over the pile and place tires along the top and sides of the windrow, spacing them about 2.5 to 3 metres (8 to 10 feet) apart down the length of the pile and about ½ to 1 metre (2 to 3 feet) apart going across it (see Figure 2).

If tires are tied together, the string will help to hold down the plastic and fewer tires are needed. Tie tires together with plastic string over the pile at 2.5 to 3 metres (8 to 10 feet) intervals with the tires touching the ground on each side of the pile, the result is a lacing effect.

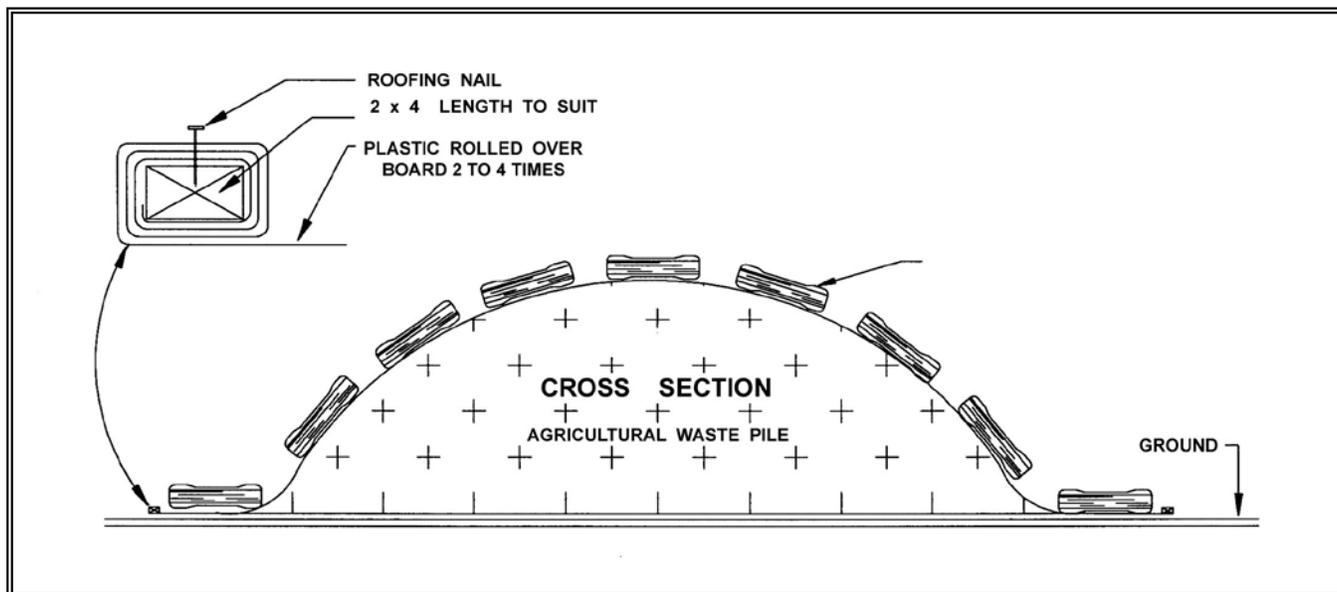


Figure 2 Cross Section of Storage Pile with Plastic Cover

- Next, place 2 x 4's along the edge of the plastic, wrapping the plastic around the 2 x 4's and securing with a wide headed nail (roofing or foam board nail). Space the 2 x 4's at approximately 1 metre (3 feet) intervals (see Figure 2 and 3).
- When it is time to use the stored agricultural by-products, remove the tires and roll up the plastic from one side to the other. The plastic may then be folded lengthwise and stored at the site until needed again (see Figure 4 and 5).

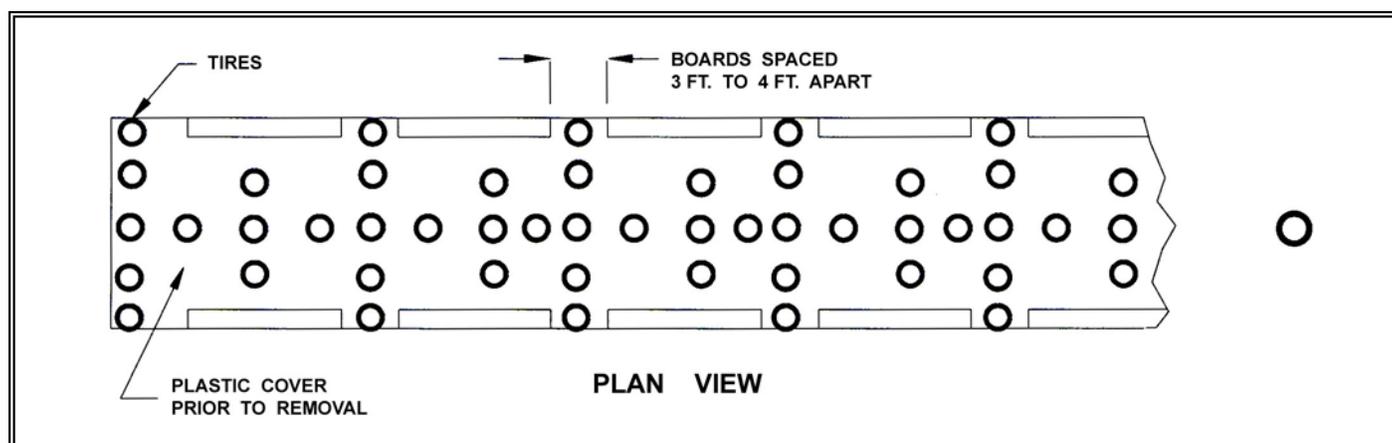


Figure 3 Covered Pile

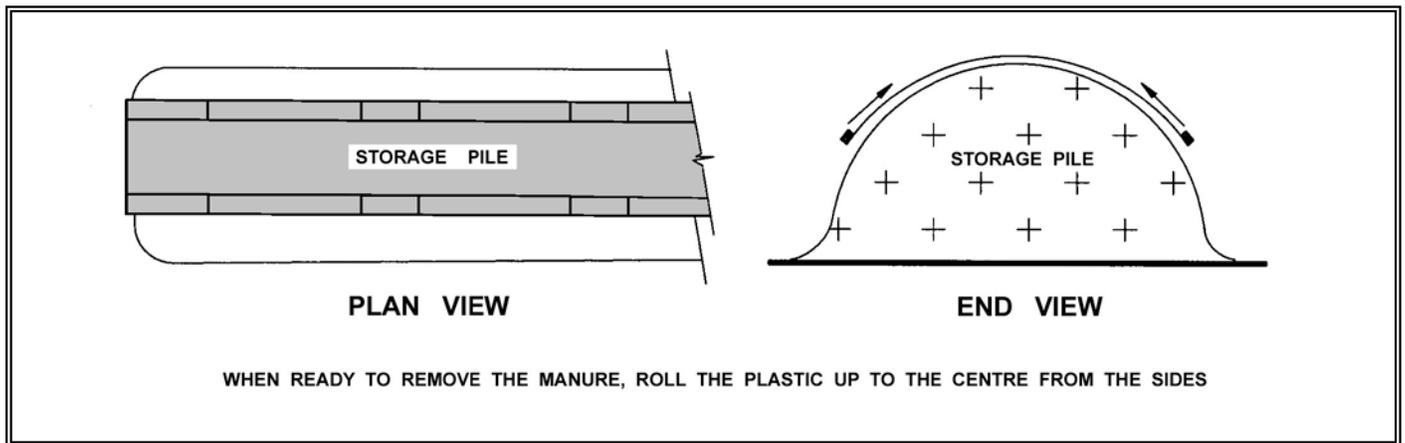


Figure 4 End View of Storage Pile

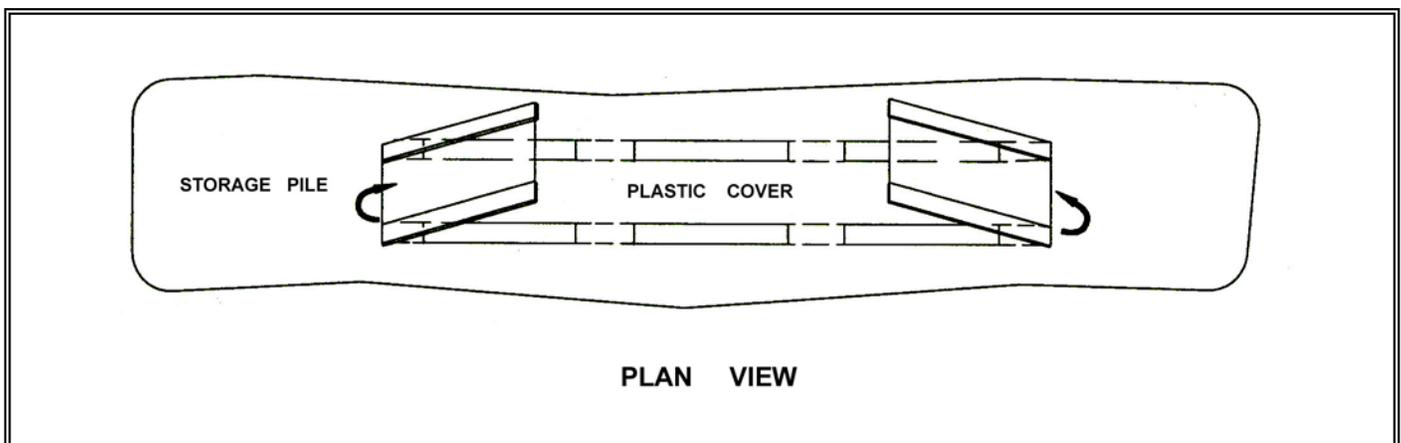


Figure 5 Removal of Plastic Cover by Folding the Ends Toward the Middle

- For small agricultural by-product piles that are to be covered for field storage, an optional cover installation is shown below (see figure 6).
- This installation shows the edges of the cover backfilled by soil and the cover held down by tires and plastic string or rope. In some areas, one or the other of these methods will be adequate to secure the plastic. In areas where there is more wind, additional tires and rope may be required to secure the tarp or plastic.

A bed of hog fuel or shavings can be placed on the surface of the ground before covering with agricultural by-products. This is done to raise the by-products off of the ground and to provide easier front-end loader removal and limiting the potential to disturb the surface on removal. The wood residue is then incorporated into the agricultural by-products and land spread.

Caution: Gas can accumulate within the pile if it is covered with a tarp for extended period of time and the tarp does not breathe (or release gas). Take caution to avoid breathing in accumulated gas when removing the tarp or disturbing the manure.

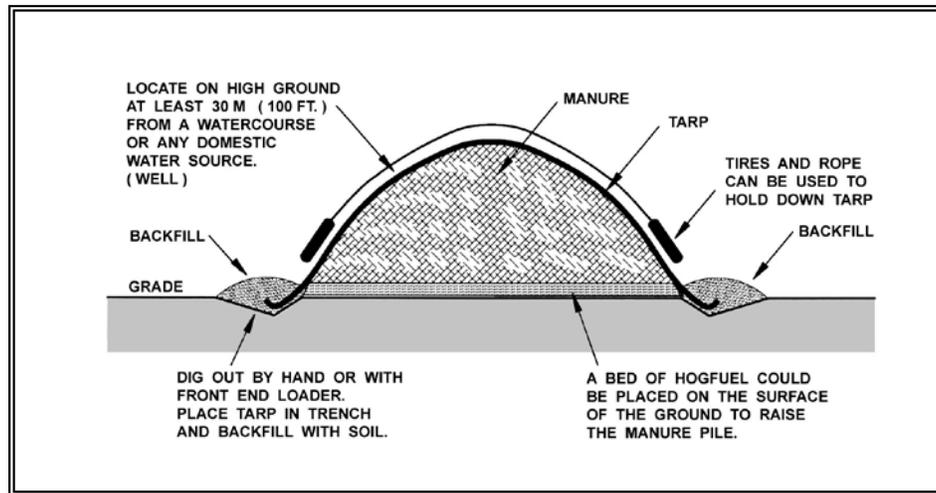


Figure 6 Optional Cover Installation

FOR FURTHER INFORMATION CONTACT

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