NEWSLETTER

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Please contact your local extension office for the print version of any article included in this newsletter.

Here's your April Driftless Ag Update!

Hello and congratulations on receiving our April Driftless Ag Update! This newsletter is co-written by your local UW-Madison Extension Ag Educators, Beth McIlquham (livestock) and Sam Bibby (crops).

Notes from your Regional Crops Educator- Sam Bibby

-Free Closing Wheel Trial. Thats right, I have 7 varieties of aftermarket closing wheels for anyone to try if they would like. 4 of the 7 will fit a John Deere 7200 or newer (or similar Kinze). All 7 should fit a JD 1750 or newer. If you would like to run these for a day or two that would be great. All we ask for is the right to measure emergence and stand counts. Give me a call to get on the list this spring.

-We are hosting the second annual Organic Crop Production Workshop on April 16th. It was a great workshop last year and we are looking forward to building on it. If you were there last year, you know the food was great. Dr. Erin Silva and her OGRAIN Team will joining us to discuss their latest research around organic crop production. Check out the flyer and link below for more details.

- The Cool Bean Team at UW-Madison is looking for farmers who would like to send in soil health samples on their 2025 soybean fields. In Exchange they will provide you with the results free of charge. For more information reach out to Mark Kendall at mark.kendall@wisc.edu or 608-574-5972

Notes from your Regional Livestock Educator- Beth McIlquham

-Decision Tools Available: The UW-Madison Extension Livestock webpage has helpful tools for calculating costs, gestation, and yardage. These tools assist beef, small ruminant, and swine producers in making the best financial choices for your operations. From beef replacement heifer costs to freezer pig pricing, visit the Extension Livestock webpage today.

-2025 Small Ruminant Webinar Series: There is still one discussion left in the 2025 Small Ruminant Webinar series. On April 24, Dr. Cody Gifford from University of Wyoming will discuss lamb carcass quality. For more information and to register, visit https://go.wisc.edu/srw25

-Disease Digest: To see where H5N1 is affecting livestock in the U.S., use this interactive map (https://www.aphis.usda.gov/livestock-poultry-disease/avian/avian-influenza/hpai-detections/hpai-confirmed-cases-livestock).
For a tighter focus on how it is affecting Wisconsin's poultry, check out this map (https://widatcp.maps.arcgis.com/apps/webappviewer/index.html?id=41c12066a88043288d7ca51abf8fa641).
If you suspect avian flu, contact your veterinarian immediately. For animal owners of all kinds, please evalutate your biosecurity protocols. If you need help or need some biosecurity tips and tricks, please contact Beth at (608) 632-0599 or at beth.mcilquham@wisc.edu.

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In this webinar, Joy Kirkpatrick and Kelly Wilfert, both Extension Farm Management Outreach Specialists, will provide a framework to help farms to identify legal risks in farm succession and estate planning and to begin those first conversations around succession planning.
This live webinar will be held on Wednesday, April 16, 2025 from 12:30–3:30 p.m.

This webinar is free; however, you do need to register to receive the Zoom access information.

Please register online at go.wisc.edu/503k2t.

This is a free event, but we greatly appreciate pre-registration to help us plan for lunch.
Register here:
https://ograin.cals.wisc.edu/spring-workshop-2025/

April 23rd, 2025 at 8:00AM
15270 Haucke Ln, Viola, WI 54664

Discover the birds that call our farms home and explore how they can support pest control and biodiversity. Wild Farm Alliance offers a field day with valuable knowledge and skills to integrate bird-friendly practices into your farming operation.

$10 per ticket, includes lunch.
If cost is prohibitive, contact Ashley for a free ticket: ashleyc@wildfarmalliance.org

Winter Wheat Winterkill Stand Assessment

Written by Dane Elmquist, Anastasia Kurth and WILL FULWIDER

Winter wheat is tough but not invincible. This winter, Wisconsin experienced prolonged cold temperatures with little to no snow cover, creating conditions conducive for wheat winterkill. Without insulating snow, wheat plants are exposed to freezing conditions, damaging their crowns and roots. Assessing stands in the spring will help producers determine if their crop has survived and is strong enough for a good yield. This article covers steps to assess early-season stand loss from winterkill.

Winter Wheat Winterkill Stand Assessment

The best time to assess winter wheat stands is after the snow melts, the ground thaws, and the fields begin to green up—usually from late March to early April in Wisconsin. Stand evaluations help producers decide whether to keep the stand, replant with another crop, or implement management strategies like nitrogen applications.

How to Assess Winter Wheat for Winterkill

Start with a visual inspection of the field. Look for areas where the wheat is green and growing, as well as spots where plants look dead or missing. Remember, brown leaves don't always mean winterkill, and green leaves don't always mean the crop has survived (Photo 1). The best way to check the health of individual plants is to dig them up and look for new white roots near the crown. New roots should be white, without any dark or soft spots (Photo 2). When evaluating a stand, count the number of plants per square foot or plants per foot of row. Using a square foot quadrat could be helpful (Photo 3). Producers should target 12-15 live plants per square foot or 7-9 plants per foot of row to keep the crop (Table 1). Make sure to distinguish between whole plants and tillers when counting (see the Winter Wheat Development and Growth Staging Guide). Count plants at several random spots in the field to get an accurate representation.

Green patches will be interspersed with drab brown areas. The brown areas do not necessarily mean those plants are dead. *Top Left: Roadside assessment of winter wheat winterkill. Bottom Left: Field stand assessment of winter wheat winterkill. Right: Root regrowth will appear from the crown and will appear as vibrant white roots.*

What to Do After a Stand Assessment for Winterkill

Based on the stand assessment, producers can make informed decisions about managing their winter wheat. If the stand is healthy, focus on proper fertilization and weed control to maximize yield. Current research from Wisconsin recommends applying nitrogen for winter wheat in the spring at green-up. For recommendations and rates, please consult "Nutrient Application Guidelines for Field, Vegetable, and Fruit Crops in Wisconsin (A2809)." If the winter wheat stand is not viable, producers could consider replanting the field with corn or soybeans to optimize the growing season or alternatively chop the existing wheat for forage to support livestock. Timely action based on accurate stand assessment can make a significant difference in overall production. Remember, a healthy stand in the spring sets the foundation for a bountiful crop in the summer. So, get out there, assess your fields, and make the best decisions for your farm's success.

Table 1. Wisconsin Winter Wheat – Spring Plant Stand Recommendations

		Row Width (inches)		
Plants per acre (million)	Plants per sq. ft.	6	7	7.5
		Plants per foot of row		
0.3	7	3	4	4
0.4	9	5	5	6
0.5	11	6	7	7
Minimum spring stands				
0.6	14	7	8	9
0.7	16	8	9	10
0.8	18	9	11	11
0.9	21	10	12	13
Good spring stands				
1.0	23	11	13	14
1.1	25	13	15	16
1.2	28	14	16	17
1.3	30	15	17	19
Excellent spring stands				
1.4	32	16	19	20
1.5	34	17	20	22
1.6	37	18	21	23
1.7	39	20	23	24
1.8	41	21	24	26
1.9	44	22	25	27
2.0	46	23	27	29
2.1	48	24	28	30
2.2	51	25	29	32
2.3	53	26	31	33

Importance of Forage Growth Stages When Grazing Cattle

Grazing cattle sounds so simple. The forage grows, the cattle eat the forage, and it all ends with a "happily ever after." Unfortunately, it's not as simple as it sounds. To maximize cattle performance while grazing, producers must pay attention to the forage itself and how it can affect the grazing animals.

Growth Stages of Forage

To begin, let's break down forage growth into three stages. Understanding these is the first step in attaining effective grazing management. The three growth stages of forage are:

- Stage One: The plant must have time to rest and regrow. While in this stage, plants use carbohydrates that are stored in the roots to promote growth. This stage occurs right after grazing or clipping and can also occur when coming out of dormancy in the spring or with newly emerging grasses.
- Stage Two: The plant's quality maximizes. Effective grazing management extends this phase as long as possible. Here, the plant has enough leaf surface area for photosynthesis, allowing it to grow without using carbohydrate reserves in the root.
- Stage Three: The plant begins reproduction and will start to set seed. At this point, the plant's yield will be higher than ever, but the quality is low because of the higher fiber concentrations, lower crude protein, and higher stem-to-leaf ratios.

How Forage Growth Stages Influence Cattle

When cattle nutrition requirements aren't met, performance is hindered, and profits are lost. Grazing cattle may need to be supplemented with additional feed to meet energy and nutrient needs when forage quality is poor or in short supply. When the quality of the forage is adequate, supplementation may not be needed, aside from mineral, and can help reduce production costs. Forage in stage two is ideal because it is more efficiently digested by the rumen. The higher forage quality results in maximum intake, which increases performance in the herd.

Forage in stage three is less ideal for grazing cattle because the fiber content is high and quality is lower, which slows digestion in the rumen and reduces available energy. Therefore, cattle will consume less, and their performance will decrease. Lastly, stage one is not ideal because when the grass is too short, cattle will struggle to consume enough forage to perform. Remember, cattle graze by wrapping their tongue around the grass and ripping it. In grazing situations where the grass is too short, it will be difficult for cattle to consume sufficient forage. Grazing forages too early and too short also stresses the plants and reduces long term productivity of the stand. Figure 1 provides a visual summary of how forage growth stages can influence cattle.

Other Benefits of Effective Grazing Management Strategies

Creating resilient plants is one of the largest benefits of effective grazing management. The best way to do this is to maintain energy reserves, often stored in the roots of plants. After cattle graze, the plant must use its stored energy to grow until the surface area of the leaves is large enough to photosynthesize enough energy on its own.

	Stage 1	Stage 2	Stage 3
Forage Growth Stage			
How the Stage Influences Cattle	Cattle performance will decrease due to the low forage quantity and struggle to eat such short grasses due to their grazing style.	Cattle performance will be highest here! Forage quality is at it's highest and cattle will get the most efficient use out of your pastures.	Cattle will reduce intake due to high fiber contents in the plant. The rumen digests this slower, leading to decreased performance.

If a plant does not have enough energy in the root reserves to grow, it will become stressed, weak, and die. Overgrazing can deplete the root energy reserves to a point where individual forage species struggle to persist, and entire pastures are left vulnerable to environmental stressors, such as extreme weather. Over time, the composition of stressed pastures will shift toward a lower quality forage, further perpetuating the problem. Managing to avoid overgrazing maintains high-quality forage for the long term.

Once you've fostered resilient plants through effective grazing management, some other benefits you will see include:

- Increased forage utilization
- More forage to be harvested for extreme weather months
- Maximized efficiency of pastures
- Better distribution of urine and manure

Summary

In the end, grazing management can help your cattle achieve maximum performance, increase the efficiency of your pastures, and, ideally, improve your bottom line. The best way to begin is to introduce short grazing periods and long periods of rest on your pastures. Utilizing a rotational-type grazing management strategy is one of the most common ways to do this. Although grazing cattle efficiently takes management and preparation, it just may lead to that "happily ever after."

Author: Beth McIlquham

Managing Slugs in Wisconsin Field Crops

Slugs are becoming an increasingly challenging pest for Wisconsin farmers who use conservation cropping practices like no-till and cover crops. The increased adoption of these practices in recent years, along with milder winters and wetter springs projected for Wisconsin in the future, may increase the importance of slugs as pests of field crops.

What are slugs?

Slugs are molluscs, a group that also includes snails, scallops, squids, and octopi. Importantly, slugs are not insects. The gray garden slug (Deroceras reticulatum) (Photo 1) is the most common slug pest in Wisconsin field crops. Scouting for slugs in field crops has also revealed the presence of the orange-banded Arion (Arion fasciatus) (Photo 2). Slugs feed on a variety of plants and can be serious pests in field crops like corn, soybeans, and alfalfa. They can be particularly problematic in fields that use no-till or reduced-tillage and cover crops1. These practices minimally disturb the soil and leave heavy residue in the field, providing a cool, dark, moist, and stable microclimate that is an ideal habitat for slugs.

Photo 1. Gray garden slugs. Photo by Bruce Martin (right), L. Flandermeyer (left)

Photo 2. An orange-banded Arion (Arion fascitaus) slug found in Arlington, WI. Photo by L. Flandermeyer.

What do slugs look like?

Slugs are legless, soft-bodied, and oblong. They are essentially snails without a shell. They have four tentacles on their head. The longer, upper pair of tentacles are used for seeing and smelling. The smaller, lower pair are used for feeling and tasting. Their body is covered with a slimy mucus, and they leave a characteristic slime trail wherever they go. The slime assists with movement and is a defensive measure to remove toxins or unwanted materials from their body. Their size varies depending on their species, with gray garden slugs reaching around 2 inches. Juvenile slugs resemble miniature adults. Slug eggs are small, white/translucent gelatinous spheres and are typically found under residue or in cavities near the soil surface (Photo 3).

What do slugs look like?

Slugs are hermaphrodites, meaning they possess both male and female reproductive organs, but they typically mate with one another to reproduce. Mating, egg-laying, hatching, and development are not synchronized, meaning slugs are found at various stages of development throughout the year1.

Figure 1. The life cycle of a gray garden slug. Figure credit: Oregon State University

Slugs have four growth stages: egg, neonate, juvenile, and adult (Figure 1). Eggs typically hatch in early spring. Neonates primarily feed on algae and fungi. They progress quickly to juveniles who feed on plants. Increased feeding occurs as the slugs mature. Juveniles and adults can remain active throughout summer if conditions allow, but they typically rest (aestivate) under hot, dry conditions. Juveniles reach maturity in the late summer to early fall. Adults then feed, mate, and lay eggs (Photo 3). A gray field slug adult can lay from 300 to 500 eggs during its lifetime. Slugs can live for about 12 months, sometimes longer, and will die shortly after laying eggs. Slugs typically overwinter in the egg stage, but mild winters can allow adults and juveniles to survive1.

Photo 3. Slug egg cluster from no-till field. Photo by L. Flandermeyer.

In general, slugs are most active from April to June and September to October. Slugs are nocturnal, typically feeding from dusk to dawn. They may also feed during rainy or overcast days. During the day, slugs hide in soil crevices and under crop residue, which is why reduced- and no-till fields are at greater risk for damage (Photo 4). They prefer high humidity and temperatures below 70°F1. Slug populations are expected to be large and problematic during a wet spring following a mild winter, or any spring after a wet fall.

Photo 4. Gray garden slug in soil crevice in corn field. Photo by L. Flandermeyer.

What are the symptoms of slug damage?

Slugs feed using their "rasp-like" mouthparts (called radula) to scrape the surface of plants. They can impact the seeds or seedlings. In corn, slugs scrape the leaves leaving window-pane damage, then ragged/shredded holes (Photo 5-6). In soybeans, slugs make holes in the cotyledons, then ragged holes on leaves (Photos 7-8)1.

Slugs are particularly problematic if they destroy the exposed growing point on soybeans, leading to plant death and a greater chance of stand loss. Slug damage to corn can cause defoliation, but young plants have a good chance to recover because the growing point is underground. Slug feeding injury can be confused with other pest damage, like early season black cutworm damage (Photo 9) or feeding damage by adult corn rootworm beetles (Photo 10), so look for slugs in residue below the plant and characteristic slime trails (Photo 11) to correctly identify the culprit.

Ensuring that the furrow or slot is closed during planting helps mitigate damage to seeds and seedlings. Otherwise, slugs have a dark, cool "highway" to travel from seed to seed. If the plants are small enough– have less than 5 leaves– the slugs may destroy it entirely.

Integrated pest management (IPM) strategies for slugs

Management of slugs can be more challenging than controlling most insects and weeds. Several pest management tactics in concert are typically needed to decrease slug populations and their damage over time.

Biological

Ground beetles, toads, garter snakes, and birds all prey on slugs and keep their populations in check. Ground beetles appear to be the most significant arthropod predator of slugs in crop fields. Using methods to increase the number of these natural predators, such as using no-till and cover crops to attract beetles, can lead to effective biological control. If you are already using insecticides, be mindful to do spot treatments so as not to reduce beneficial insect populations. Avoiding insecticidal seed treatments (e.g., neonicotinoids) can help promote ground beetle populations and slug biocontrol in field crops.

Chemical

Insecticides will not be effective against slugs because they are not insects. Instead, look for a molluscicidal bait when facing severe infestations and need a rescue treatment.

Composting Mortalities

On-farm composting is an approved method to dispose of livestock mortalities. Advantages include increased biosecurity, timely disposal of mortalities, low risk of environmental contamination, low cost, and relatively simple to do. Composting can be used for occasional mortality, emergency livestock mass casualties, and disease outbreaks.

What is composting?

Composting is an aerobic (with oxygen) recycling process where microorganisms break down organic material in a controlled environment to produce a stable product called humus. There are many ways to compost livestock mortalities. However, there are a few basics that are universal to all systems. Well-managed composting provides aerobic (oxygen-loving) microorganisms with the proper environment to grow and rapidly break down the mortality.

Carbon-to-Nitrogen Ratio

One of the key factors in proper composting is the carbon-to-nitrogen ratio. The optimum carbon-to-nitrogen ratio should be 25:1, with composting occurring as low as 10:1 and as high as 50:1. If carbon levels are too low, high ammonia odors will escape. The primary nitrogen source is the mortality (typically about 5:1 C:N). The carbon is supplied by the bulking material/co-compost/carbon source material used to make the pile. Common materials used as a carbon source are sawdust, woodchips, finely chopped corn stalks, chopped straw, bedded pack manure, and separated manure solids. Corn silage and chopped hay could be used if other materials cannot be found. There are many considerations when choosing a carbon source, the first being availability. Beyond availability, another thing to consider is the amount of carbon that can be provided for absorbency to handle any liquids released from the carcass during the process, a structure that can allow for proper oxygen exchange, insulating factor, and particle size. Particle size should be in the range of .25-1 inch. Previously used composted material should be used as 50% or less of the carbon source.

Materials	C:N	Moisture, %
Corn stalks	60-73:1	12
Corn silage	38-43:1	65-68
Hay	15-43:1	8-10
Cow manure solids	11-30:1	67-87
Horse manure solids	22-50:1	59-79
Straw	48-150:1	4-27
Sawdust	200-750:1	19-65
Woodchip	451-891:1	–
Leaves	40-80:1	–

Table 1. *Carbon to Nitrogen (C:N) and percent moisture values of common carbon sources*

**On-Farm Composting Handbook, 1992, R. Rynk*

Moisture

The ideal moisture range for composting is 40-60%. A rule of thumb for proper moisture content would be to squeeze a handful of material; the material should hold together but not be so wet that water can be squeezed from the solids, like a damp sponge. If the compost is too dry, bacteria growth will be slowed and decomposition will take longer. If there is too much moisture, there will not be enough air exchange, and the bacterial type will change from aerobic to anaerobic. Anaerobic bacteria produce sulfur and ammonia-containing gasses that produce strong offensive odors.

Temperature

The final components of proper composting are temperature, oxygen, and pH. As stated before, proper oxygen levels are needed to keep aerobic bacteria growing. The minimum oxygen level needed is 5%. Bacteria and fungi needed for this process need a neutral environment at around a pH of 7, ranging from 5-10. Temperature is key in bacterial growth, and temperatures rise as decomposition occurs. Temperatures between 110 -150 °F indicate that microbes are present and optimum decomposition occurs. The pile must be heated to 131°F for three consecutive days to destroy pathogens. When the pile temperatures drop below 110°F, this can indicate it is time to turn the pile to add oxygen and stimulate bacterial growth. Temperatures at or above 150 °F will decrease microbial activity. The length of time needed to compost mortalities depends on the mortality size and time of year (ambient air temperatures). In most cases, the first heating cycle will be done in three to six months, and the pile is turned for a second heating and possibly a third. With ideal conditions, it typically takes about three months for most of the soft tissue to be degraded and may take up to a year to completely decompose. Temperature monitoring will indicate when to turn.

Winter months can present challenges with freezing temperatures. New compost piles, constructed with unfrozen materials and fresh mortalities, will start to compost provided enough insulation material is used to retain the heat produced within the pile. Unfrozen recent mortalities can also be added to an existing actively composting pile provided enough insulating material is used. Mortalities, which freeze up, when used with cold materials to construct a compost pile will struggle to start the composting process.

Caution should be used to immediately place the fresh mortalities into a compost pile to avoid the toll of freezing temperatures. The cap material shown in Figure 1 can serve the purpose of insulation and maintaining heat within the pile. The thickness of the cap materials may need to be increased during winter months to increase its insulation capacity.

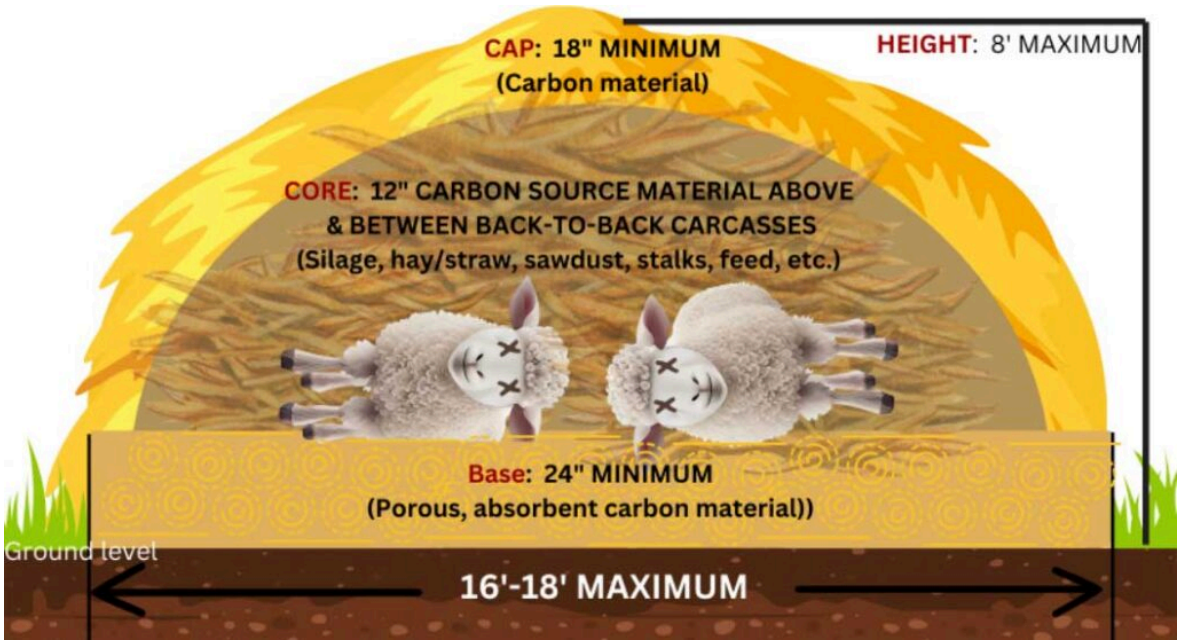


Figure 1. *An example of a completed pile for composting multiple mortalities*

When is the composting process complete?

When temperatures remain within a few degrees of ambient air temperature after turning, the process is complete. The mortality should be reduced to a few large brittle bones and in the case of sheep, some wool fibers, which can be buried, and the compost utilized as a soil amendment.

Pile Construction

The number and frequency of mortalities and available facilities and materials will determine the type of composting setup. The number and size of the animals to be composted will determine the size of the pile for occasional composting needs. In general piles should be at least 3 feet deep if composting small animals (poultry, baby lambs) and not more than 8 feet deep for large animals to insure good composting. It is more practical to make longer piles than deeper piles for multiple larger animals. Piles can be placed in permanent locations, such as a 3-sided building with concrete walls with multiple bins/stages, outside with bales as walls, a single static pile, or a windrow. However, loading all of these systems is very similar. Structures with walls will reduce the amount of carbon source material needed.

- The basics to loading are to put down a layer of carbon source material about 24 inches deep and in an area large enough to have 24 inches of space between the mortality and the edge of the pile.
- Next is to lay the mortality on its side. At this point, the abdomen may be lanced to reduce bloating in the composting process and to allow microbes access to nitrogen.
- Next, cover the mortality with another 24-inchlayer of carbon source material. (Figure 1)

- If multiple mortalities are added at once, laythem in the pile so they are lying back-to-back. (Figure 2)
- If they are layered, place a 12-inch layer of carbon source material in between the mortality layers.
- If the pile is outdoors, crown the pile to facilitate the runoff of rain.
- A fence can prevent scavengers from disrupting the pile when working with outside compost systems.

Windrow systems are a good option if there are frequent mortalities. In a windrow system, mortalities are added end to end as they occur to create a long "windrow" of compost with turning occurring in sections.

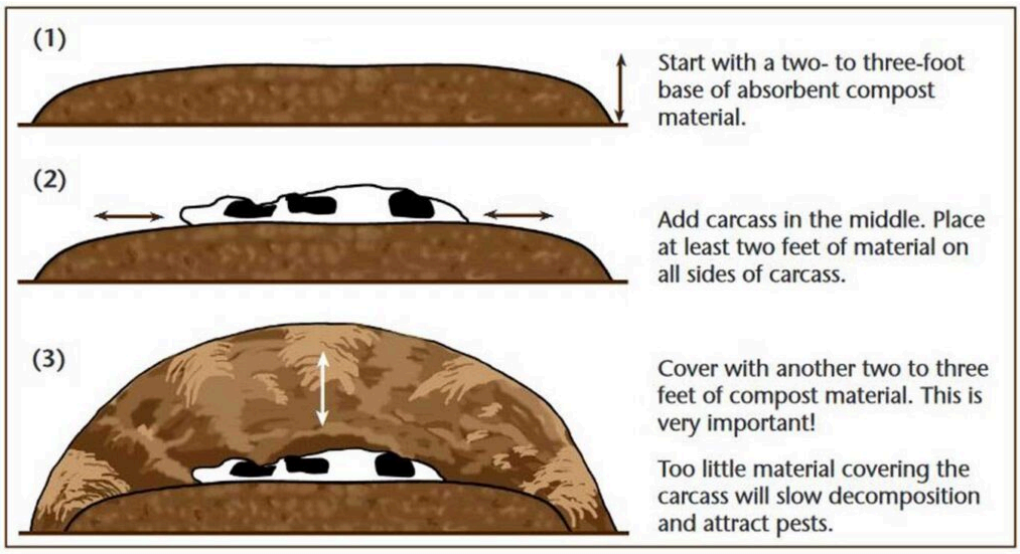
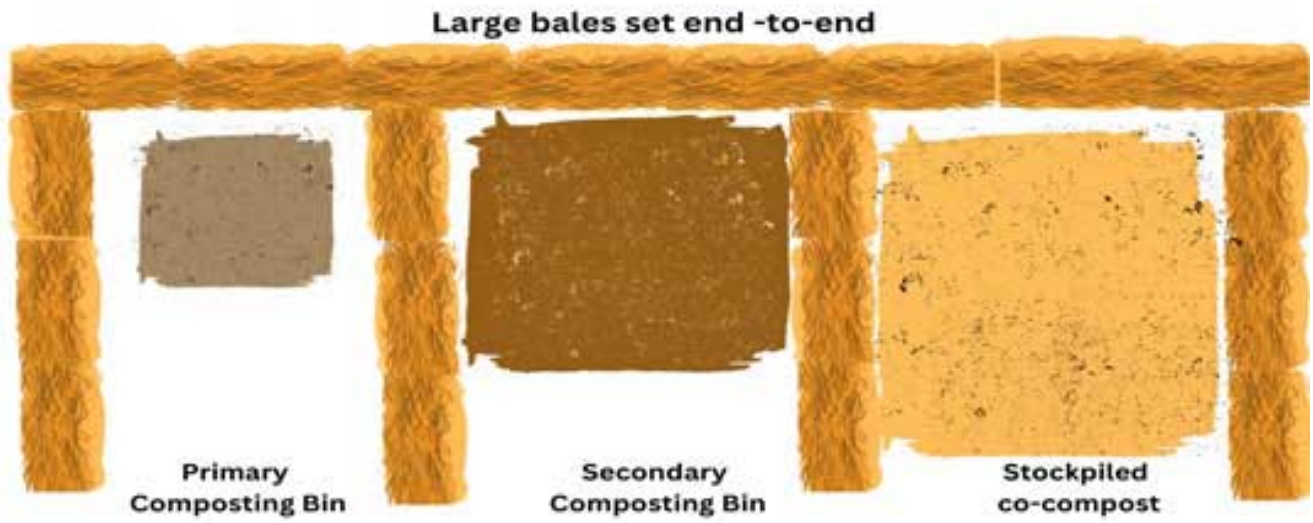


Figure 2. *Step by Step process for constructing a composting pile.*

A multiple bin set-up, as shown in Figure 3., can help organize the composting process and provide protection from the wind. The example in Figure 3 shows low-cost dividers made of large round or square bales of corn stalks or similar material. Large livestock operations may consider constructing an appropriately sized building similar in floor plan to a commodity shed with a roof, permanent walls, and bin dividers to improve ease of management of composting mortalities. The plan's design is intended for each phase to have its own bin. The initial burial and heating cycle would occur in the first bin. As the pile is turned, it is moved to the next bin. The first bin would then be available for starting new mortalities. Additional bins can be added to store bulking material before its use for composting and for completed compost if it cannot promptly be land applied.

The advantages of a multiple-bin layout are additional protection from the wind and a systematic plan for large operations with greater composting needs. Farms with occasional mortalities may also construct a bin or shelter around a single pile if additional protection from the wind is needed. Costs need to be compared to benefits to determine the most efficient setup and design for a farm.

Figure 3. *Example of a low-cost multiple bin setup using large bales*



Site Selection

The compost facility/pile site should be high and dry. Environmental considerations must be made. The site should be located away from frequently used farm traffic routes yet be easily accessed by needed equipment, be close to carbon source storage, and be easy to get water to if the carbon source material becomes too dry. Public perception and neighbor relations should also be considered.

- Avoid wet areas; the location must be high and dry.
- Avoid slopes and areas with surface water flowduring rain events and snowmelt.
- Locate at least 3 feet above a high water table.
- Locate at least 300 feet from streams, ponds, or lakes in the same drainage area.
- Provide runoff collection/storage for the site incase of extreme water events.
- Ensure available in access in all types of weather conditions.
- Maintain suitable access to carbon source material storage.
- Locate a safe distance from buried and overhead utilities.
- Consider other farm traffic flows.
- Consider prevailing winds.
- Maintain biosecurity precautions.
- Consider aesthetics and landscaping – Screen view from neighbors or passing motorists.

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