

U.P. Ag Connections Newsletter

September 2021 *Agricultural News from MSU Extension and AgBioResearch* Volume 25 Issue 9

Vertebrate management for vegetable growers *By Ben Werling, MSU*

Deer, cranes, turkeys, blackbirds, voles… varmints. Vertebrates-or wildlife with a backbone-can be very destructive on the farm and a food safety concern. And-just ask Elmer Fudd-they can be very frustrating to manage. Deer, rodents and birds are smarter than the average insect, and can become habituated to or circumvent our best efforts. Many also have dedicated constituencies pouring time and money into their conservation (i.e. hunters and wildlife enthusiasts). This makes vertebrate management seem distinctly different. In reality, these unique factors make it *more* important to use an integrated set of controls-a.k.a. IPM-just like for insects and diseases. I talked with James DeDecker of Michigan State University about vertebrates on our August 25 episode of The Vegetable Beet (https://glveg.net/listen). Below are some of the tools we discussed, and things to consider when using them.

Fencing is effective at excluding large vertebrates like deer, but consider all the costs and don't forget to consider what's outside the fence. On the cost side, consider that more permanent fencing (e.g., welded or woven-wire) may have a higher up-front cost than temporary fencing, but may be more effective and have lower maintenance costs. What to invest in all depends on how predictable and devastating damage is. Also on the cost side, remember that fencing materials are paid for on a per foot basis. More area will be protected per foot of investment when fields are larger and more square in shape, with less edge. Each foot of fencing protects less area in long, skinny fields, which have a high perimeter to area ratio. An excellent article on deer fencing is at https://bit.ly/deerfence. Last, consider that what is *outside* a fence will affect how motivated animals are to get *inside* it. If you or your neighbor have a delicious, large food plot, you may be able to get away with lower cost, lower-efficacy fencing.

Harassment is a common approach when it comes to dealing with bird damage, and highlights the importance of using multiple tools in unpredictable ways. As we talked, I was reminded of a field of sweet corn I visited, where the "thwump" of a propane cannon seemed to scare me more than the birds. Blackbirds are pretty smart. Once they observe that a scare tactic is predictably not harming any flock members, they become habituated to it or "get used to it." And, they are social, so they share the "good news" with the rest of their flock. What can growers do? First, be unpredictable in space and time to keep them guessing. Move owl effigies around the field so they are not always in the same spot. Use timers-and change up when they turn on-for air dancers. Change up the distress call you are using. Further, use more than one of these tactics and don't be afraid to innovate if they're not working. James shared that one grower placed an owl effigies on very tall poles, so they flopped around in the wind and were visible from a larger area. Another creative idea for sweet corn is to remove the tassel after pollination is complete so birds don't have a place to perch. For more information on these and other ideas for birds in sweet corn, check out a study from Cornell University: https://bit.ly/birdsincorn.

Repellents are another option to consider; they have their pros and cons but some growers have found them to be a good fit. In general, there are two types: "area" repellents are scent based and protect an area larger than the application site, while "contact" repellents require the animal to touch them to work. Area repellents tend to be either blood- or egg-based, and mimic the scent of predators (somebody will eat me) or prey (somebody got eaten). One nice feature is that they do not have to be applied to an entire field to provide help. Downsides may include cost as well as convenience. For example, some blood-based products are not the easiest to spray. Just remember their efficacy will depend on how attractive your vegetables are compared to what's available in the surrounding landscape, just like for fencing. One very successful contact repellent is the product Avipel. It can be used to protect seedling corn from damage due to birds like cranes, which pull up the young plant to eat the seeds. This seed coating makes them sick to their stomach. Another contact repellent for birds is methyl anthranilate, which is a non-toxic chemical also used in artificial grape flavor. A key thing to note is that it rapidly degrades in the environment, so repeated application is needed. One other key thing to note for this-and all other-tactics is that they are most effective when used *before* wildlife find out your vegetables are tasty.

Lethal control is another important control option that can require permits, but it all depends on which species. This is because different agencies regulate different species. Some species are not regulated and require no permit at all if causing damage in Michigan (e.g., starlings, grackles, blackbirds, racoons etc.). Some game animals-such as deer and turkeys-are regulated at the state level, and require state permits from state agencies such as Michigan's DNR. Others-including migratory birds like cranes and geese-are regulated at the federal level and require permits from the US Fish and Wildlife Service. Check out a helpful article at https://bit.ly/doineedapermit; be aware this article reflects the situation Michigan, and make sure to know your own state law. When seeking a permit, also consider bringing documentation with you to show the scope of damage, and your investment in dealing with it. This is not required, but it may help educate staff who are tasked with protecting wildlife.

These tools can all be helpful, but don't forget the key thing that makes vertebrate management different, people. Nobody really cares if you control aphids on your brussels sprouts (except your happy customers!), but people invest money in managing game and protecting wildlife. This means that long-term solutions could benefit from everyone working together. Partnering might also mean that growers don't have to shoulder the full cost of wildlife management. For example, in Wisconsin the Wildlife Damage Claims and Abatement Program uses hunting revenue to help offset costs for growers to mitigate wildlife damage and also compensates them for damages.

Improving Soil Health Management Systems on a U.P. Dairy Farm

J. DeDecker, A. Bahrman, C. Kapp and M. Jean

Researchers at Michigan State University Extension received funding from the USDA-NRCS Conservation Innovation Grant program to explore soil health management systems in the Upper Peninsula of Michigan. This included on-farm demonstration of soil health management practices for a row crop-dairy system in Menominee County and a pasture-based beef system in Chippewa County. Our goal for the row crop-dairy system was to showcase options for increasing rotational diversity through intercropping and interseeding of cover crops within regionally adapted agricultural practices. Two systems were tested; corn silage-alfalfa intercropping and cover crops interseeded into standing corn.

Methods

A conventional tillage corn silage field was packed prior to planting to prepare for alfalfa seeding. Four treatments were established including 1) Corn, 2) Alfalfa, and 3) Corn-Alfalfa, with four replications. A silage hybrid with upright leaves (WRV 2785 GT) was planted May 13th by the cooperating grower. Roundup Ready alfalfa (FGI430RRLH) was seeded the same day as corn planting at 16 lbs/acre using a Brillion seeder. The seeder was run across the corn rows. Corn was rogued from 'Alfalfa only' plots soon after emergence. Alfalfa stand counts and soil samples were taken mid-season. Deer damage to the intercropped alfalfa was significant all season. Corn and alfalfa yield was measured at silage harvest time on Sept 11th.

In another part of the same field, cover crops were interseeded into V4 corn on June 18th. Interseeding was accomplished using an APV PS 200 M1 air seeder mounted on a custom toolbar featuring S-tines on parallel linkages and drag chains between rows to loosen the soil and incorporate cover crop seed. Cover crop treatments included crimson clover (20 lbs/a), annual ryegrass (15 lbs/a), triticale (120 lbs/a) and control plots without cover crop. Treatments were replicated three times. Cover crop stand counts and soil samples were taken mid-season. Grass weed pressure was high in several plots. Corn and crimson clover (the most successful cover crop) yield was measured at silage harvest on Sept 11th.

Results and Discussion

Alfalfa established well, averaging 16.96 plants per square foot across treatments. Although competition with the corn and deer damage were both significant, the alfalfa persisted until silage harvest. The alfalfa did significantly reduce corn silage yield where the two crops were grown together. However, if the alfalfa yield is also considered, intercropping did not significantly reduce total dry matter yield (Fig. 1). Solvita soil respiration was somewhat different among treatments, with the Corn and Corn-Alfalfa treatments showing more biological activity than the Alfalfa plots (Fig. 2). Active soil carbon did not differ among the treatments.

TRIAL DETAILS

PURPOSE:

Trial intercropping of alfalfa and cover crops in silage corn to enhance soil health and productivity

TRIAL LOCATION:

Twin Island Farm

Wallace, MI

EXPERIMENTAL DESIGN:

Randomized complete block design with three or four replications.

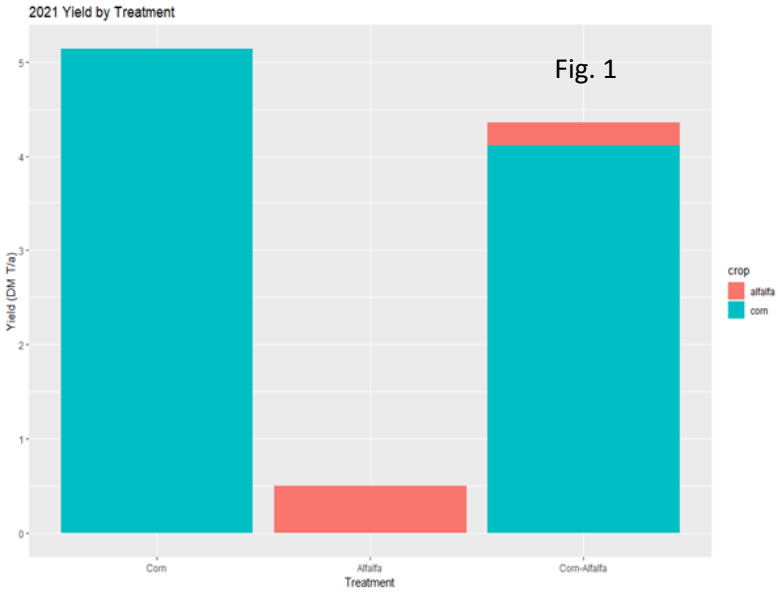
TRIAL MANAGEMENT:

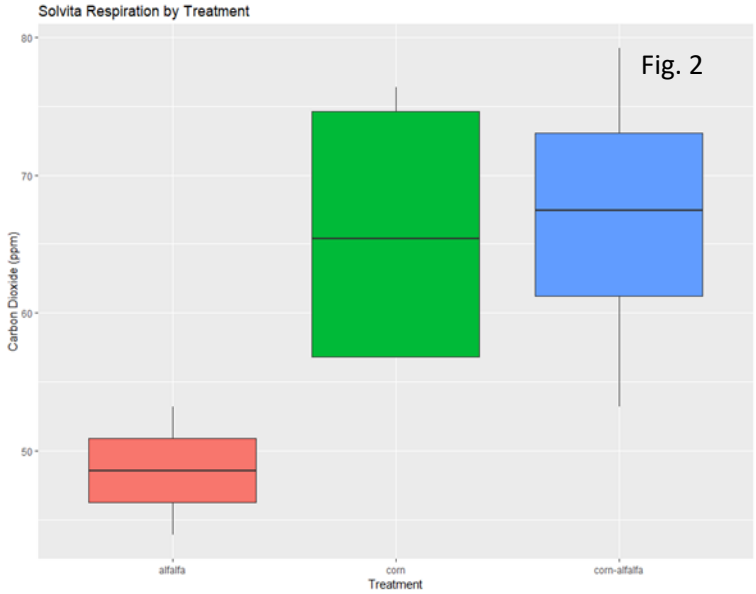
- Field received manure, conventional tillage and was packed before planting
- Corn planted and Roundup Ready alfalfa seeded with Brillion seeder on May 13th
- Glyphosate applied June 8th for weed control
- Cover crops seeded in V3 corn with AVP PS 200 M1 air seeder June 18th

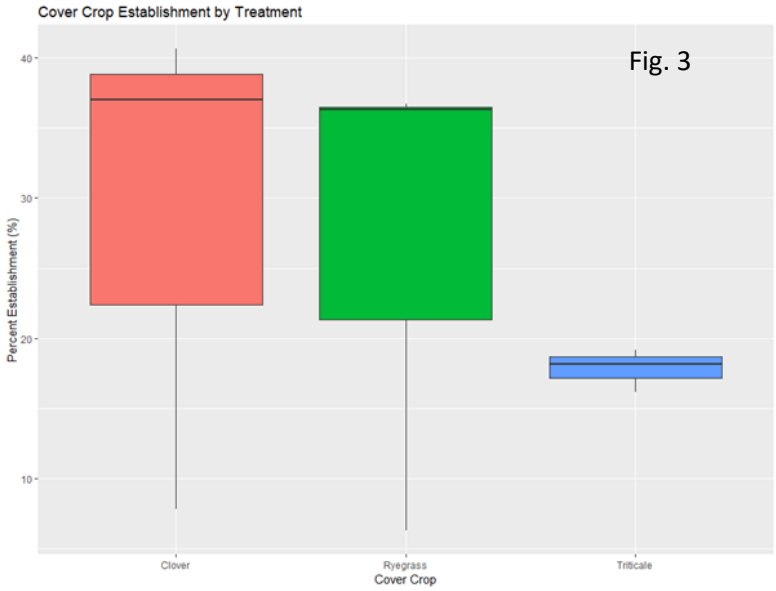
TAKE AWAYS:

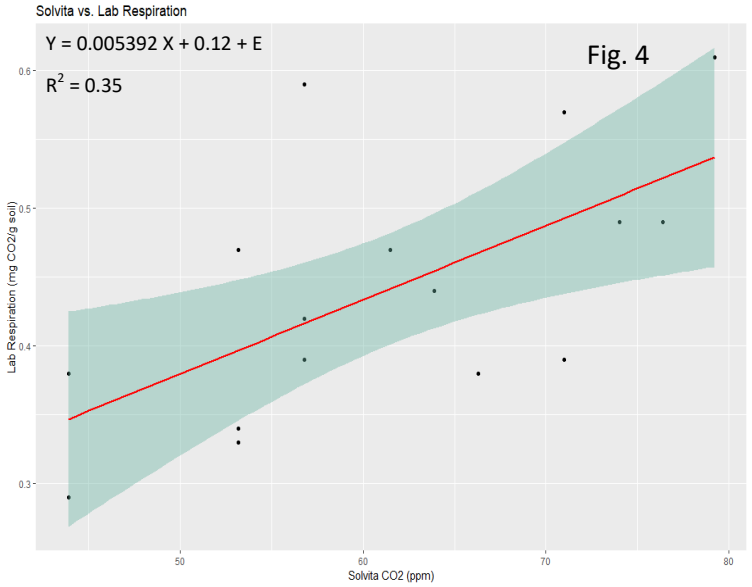
- Alfalfa established very well, reduced corn silage yield, but not total dry matter yield.
- Cover crop establishment was variable, and covers struggled to compete with corn and weeds.

Cover crop establishment averaged 24.25% and did not differ significantly among the cover crop species (Fig. 3). However, cover crop establishment did suffer where grass weed pressure was high. No significant differences were detected between cover crop treatments in active soil carbon or soil respiration. However, the results of Solvita soil respiration tests conducted on the farm were correlated with the results of laboratory soil respiration from the Cornell Soil Health Lab, suggesting that the on-farm Solvita test can be a useful tool for farmers (Fig. 4). Cover crops did not significantly increase or decrease corn yield, but also produced little additional biomass by silage harvest time. However, annual ryegrass produced abundant growth after silage harvest and into the next spring.









Forage seed supplies are short for several reasons and not expected to get better anytime soon. Know that "buy later" may not be a great idea.

https://oregonseed.org/osa-statement-on-current-state-of-the-incoming-crop-and-resulting-price-levels/

Forage alternatives for livestock in drought years *Kevin Gould & Kim Cassida, Michigan State University Extension - June 4, 2021*

Offering solutions to help stretch limited forage supplies and budgets when the weather isn't cooperating.

As livestock producers harvest and store forage resources for 2021-22, we may see significant risk with drought conditions reducing yields. This combined with elevated grain prices may create the perfect storm for significantly higher feed costs for livestock producers across large portions of the country.

For producers that rely heavily on hay or haylage for winter feed, Michigan State University Extension offers some alternatives that can help stretch limited forage supplies.

Extend the Grazing Season

It is difficult to understate the impact that managed grazing can have on the length of the grazing season. Managing animal movement so that plants have a chance to recover from grazing is always important but never more so than when weather is not cooperating. Harvesting forage with livestock is also less costly than harvesting it with machines.

Alternative Forages

Perennial forages are the backbone of many livestock operations but many perennials go dormant as a survival strategy during drought. Annual forages offer a solid alternative in drought emergencies because many can produce harvestable forage within eight weeks after planting given a minimal amount of water.

Keep in mind that it is rarely wise to terminate a perennial forage stand in order to plant annual forages, unless the field was already scheduled for renovation due to poor performance. In that case, annuals are a useful step in a forage rotation regardless of weather. In summer, look at forage species that thrive in warm, dry conditions such as forage sorghum, sudangrass, sorghum-sudan hybrids, teff, pearl millet, or foxtail millet. These crops can provide emergency forage in about eight weeks and can be grazed, baled, or chopped.

In spring or fall, consider small grains or brassicas. Oats planted in late July or early August after wheat harvest can produce harvestable forage in as little as six weeks, and adding field peas boosts protein content. Brassicas (turnip, radish, forage rape) planted in late July to early August can be ready to graze in eight weeks and their excellent cold tolerance means you may still be grazing them in December. Triticale or rye planted in September after corn silage will not provide any fall forage but can provide a spring pasture or haylage crop 2-3 weeks earlier than perennial forages and are removed in time to double-crop with silage corn.

Crop Residue/Stover

Another key area to consider is crop residues. Many producers see crop residue as a challenge to get tilled-in and broken down before planting the next crop. Livestock producers should see crop residues and potential feed sources and consider including them in their annual feed inventories. Corn stover can vary greatly in feed value based on the portion of the plant harvested. Focusing on harvesting the upper 2/3 of the plant including husk, silk, cob, and leaves increases both feed value and palatability. Leaving the lower portion of the stalk in the field should be your goal. Processing (shredding or chopping) the harvested portion also increases feed quality and palatability.

Resources to harvest, store and feed can be viewed within each of the following links:

MSU Forage Connection

Crop Residue Feed Value

Forage Testing: Phil Kaatz (2012)

Feeding Straw Residue

Other crop residues like wheat or oat straw can be utilized as feedstuff in limited quantities. However, straw has higher opportunity cost in the marketplace and may not be feasible to feed. As when grazing cover crops, be sure crop residues have not been treated with a pesticide that is illegal for feeding to animals.

Testing Forages for Ration Calculations

The nutritional value of crop residues and harvested cover crops is highly variable. Therefore, forage testing is critically important to determine actual nutrient concentration so that diets can be balanced to meet specific animal production needs. Look for a forage testing lab that is certified by NFTA (National Forage Testing Association). Two NFTA forage testing labs have locations in Michigan: Dairyland Labs in Battle Creek (269-753-0048) and Alliance Analytical Labs in Grand Rapids (616-837-7670). There are also many other good forage testing labs outside of Michigan. Contact your chosen lab directly for details on how samples should be prepared and shipped. See Sampling hay, silage, and total mixed rations for analysis for general instructions on how to collect a forage sample.

Pricing Crop Residue

Crop residues are generally priced based on nutrient and organic matter removal values. Crop residue values are generally lower in energy and/or protein compared to average hay values/dry ton. Nutrient values for energy and protein will need to be calculated compared to viable alternatives in your feeding system. With hay and related forage inventories at lower levels and reduced first cutting yields, winter supplies are projected lower than normal. If drought persists, we can expect this problem to negatively influence forage supplies and elevate cost. Corn or soybean residues are likely the most available and abundant in most areas of the country. Pricing can be easily calculated by utilizing this link

Classifieds

WANTED: Farm plow for tractor and looking for someone to custom combine 50 acres barley in 2022, Iron River area. Call Dale Carlson (815) 260-2930.

FOR **SALE: Simmental Bulls,** mature and young, registered and non-registered. Call Duane Kolpack (906) 362-6862.

FOR SALE: 2nd and 3rd crop alfalfa, small square bales. Marenger Potato Farm, Flat Rock. (906) 384-6587.

FOR SALE: Registered Dexter cattle, all ages and models. Call Tolfree Farms (906) 884-2351 or email countryj@jamadots.com.

FOR SALE: Hay, large square bales 3x3x7.75 Timothy grass, 4,000 to sell. Former dairy farm doing all big square bales hay. Call Dave Bell in the EUP 906-440-6455 or email Bellsdairy@yahoo.com. Also a realtor in the UP so contact me for real estate here. Dave@smith-company.com

Beautiful property in the Upper Michigan, 130 acres In Perkins for sale or pasture for rent for livestock for the 2021 season. Beautiful river running through it. Great for hunting, building or developing, or simple grazing livestock. Land is divided into 9 paddocks with high tensile electric fence and 5 stock watering ponds. Call (906) 359-4825.

FARM FOR SALE: Upper Peninsula Farm with over 1,100 acres, water access, maple syrup production, and much more!
Shady Lane Farms
http://shadylnfarms.wixsite.com/shadylnfarms
Henry DeGroot (906) 238-4251
hjdegroot@alphacomm.net

FOR SALE: John Deere B. Clean, less than 50 hrs on rebuild. **Allis-Chalmers C**. New paint, runs good. **Hay Hauler**. Hauls up to 10—4x6 round bales, use spear on back, don't have to unhook. Call Terry (906)644-2777.

FOR SALE: International 5000, Self-propelled 14 foot windrower cab-hydro-diesel, has detachable hay conditioner. Stored inside, field ready. $5000 (906) 988-2397.

FOR SALE:

52'elevator Kewanen PTO drag line

NH 56 Rake

Gehl Round Baler 4x4

3 pt wheel rake 16' wide

3 hay wagons with racks

All used last year

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FOR SALE: Simm Angus Bulls-Genomic Tested, Balanced EPD's, Great Disposition, born Fall of 2020. (906)281-0808 or (815)614-0163.

Market Report

Choice Steers	$115-$129 per 100 lbs.
Holstein Steers	$100-$116 per 100 lbs.
Hogs	$61-$66 per 100 lbs.
Lambs	$200-$240 per 100 lbs.
Cull cows	$45-$60 per 100 lbs.
Calves	$65-$80 per 100 lbs.
Goats	$200-$325 per 100 lbs.

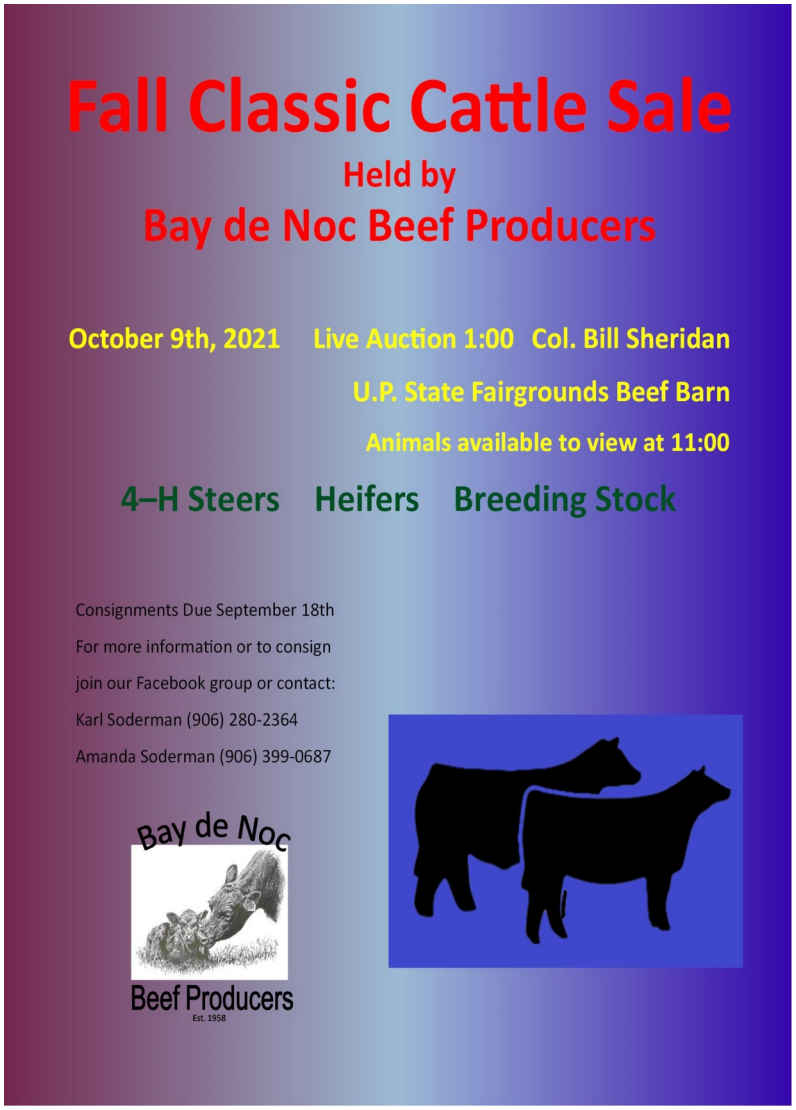
Breeding and Feeder Animals

Grade Holstein cows	$700-$875/head
Grade Holstein bred heifers	$1000-$1250/head

Feed Prices across the U.P.

	Avg. $/cwt	Avg. $/ton	Price Range
Corn	$16.25	$325.00	$285-426
Soymeal	$26.31	$526.25	$459-624
Oats	$13.74	$274.75	$240-340
Barley	$12.41	$248.25	$200-314

Average price/100 wt. for 1 ton lots



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Update on fall armyworm (FAW) and how to control them…*By Christina Difonzo, MSU*

More reports are coming in from a smattering of locations - Hillsdale Co, St Joe Co, Grand Rapids, Chesaning. Infestations are spotty across the landscape, likely due to moths being dropped by a weather front 3-4 weeks ago. Crops potentially infested: alfalfa, grass hay, mixed stands, pasture, small grains, soybeans, teff, home lawns, golf courses. Videos are making the rounds of harvest equipment squirming with FAW. Based on the pics, my gut reaction is that once people notice damaged fields, the larvae are too big to spray and expect good control. However, below I've typed up all I know about FAW control, plus info gleaned from southern colleagues.

Management w/out insecticides

* Mowing stands may control armyworms without spraying. The cutting kills some larvae and leaves others exposed to the sun (also, it is satisfying to crush them). But survivors may still feed under the windrows, so it is important to get the forage dried and baled as fast as possible.

Should you spray?

* Threshold - sweep net: 2 or more larvae per sweep
* Threshold - visual count: 2 or more larvae per square foot
* Spraying is most effective on small caterpillars (half inch). Bigger caterpillars are harder to kill, regardless of the insecticide used
* When spraying intentionally mixed stands of alfalfa & grass, both crops must be on the label!

Tips for Spraying:

* Spray in the morning or evening, as caterpillars may hide out on the ground during the day
* If caterpillars are invading a field from an adjacent field, consider a limited border treatment
* Entomologists in the southern states report that pyrethroids may not be very effective on FAW. Remember, FAW colonizes from the south where it may be sprayed in multiple crops. Our current infestation likely originated in moths blown north on one of the recent weather events. The population may already be somewhat tolerant to certain products simply because of previous exposure in the south.

Insecticide wisdom gained from southern entomologists

* Pyrethroids: Cheap, many choices available. But may wash off with rainfall, and there is potential that larvae are resistant.
* chlorantraniliprole (Besiege, Prevathon, Vantacor): This a.i. is absorbed by the leaf surface and thus is rain fast. Appears to work well so far, according to southern folks. Con - Its more expensive.
* methoxyfenozide (Intrepid): Relatively inexpensive, with residual of about a week. However, it must be eaten to kill, so coverage is important.
* A few other products used for FAW are Orthene and Dimilin. Check labels for crops and rates. Dimilin must be applied on small larvae.