



**Western New York's Original Corn Maze
by Emerald Green Acres**

**Western
New York**

CROP MANAGEMENT



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REDUCING SOYBEAN HARVEST LOSSES

Compiled by Dan Steward from articles by Mike Staton, Michigan State University Extension, and Gary Zoubek, Nebraska Cooperative Extension

Reducing harvest losses is a simple and effective way to increase soybean yields and profitability. Losses of 7.5 percent are common. With careful maintenance and operation, harvest losses can be maintained at 3 percent. Reducing harvest losses from 7.5 to 3 percent in a 45-bushel per acre soybean crop will increase the marketable yield by two bushels per acre. With market prices projected to average around \$13 per bushel for the marketing year, this translates to \$26 per acre of additional income.

The following are some of the factors that should be considered:

Harvest Timing

Properly timing your harvest operations is critical to reducing harvest losses. Harvest operations can begin any time after the beans have initially dried to 14 to 15 percent moisture. This will occur five to 10 days after 95 percent of the pods have reached their mature color under good drying conditions. Try to harvest as much of your crop as possible before the moisture level falls below 12 percent to reduce splits and cracked seed coats. Shatter losses have been shown to increase significantly when seed moisture falls below 11 percent and when mature beans undergo multiple wetting and drying cycles.

Monitoring Moisture

It's probably more common for soybeans to be harvested at 10% moisture or less than it is to harvest them at the desired 13%. Beans testing over 13% moisture are assigned a penalty that shows up on the scale ticket. Soybeans testing under 13% are also penalized, but it shows up as fewer bushels to sell rather than an item on the scale ticket.

A standard bushel of soybeans weighs 60 lb and is 13% moisture; that is 52.2 lb of dry matter and 7.8 lb of water. If you harvest soybeans at 12% moisture, you still have 52.2 lb of dry matter, but the bushel of beans weighs 59.318 lb instead of 60 lb. The lost water is 0.682 lb or a 1.137% decrease in beans delivered. If you are harvesting 60 bushel soybeans at 13% moisture and sell them for \$13 a bushel, you will receive \$26 an acre more than letting them dry down to 10% moisture. This loss will increase to nearly \$40/acre if you harvest them at 8% moisture.

Equipment Maintenance

Before harvest operations begin, inspect and repair the cutting parts on the header. Make sure that all knife sections are sharp and tight. Check the hold-down clips to ensure that they hold the knife within 1/32 of an

inch of the guards. Adjust the wear plates to the point that they lightly touch the back of the knife.

Equipment Adjustment

Information from the University of Arkansas shows that a skilled combine operator can reduce harvest losses significantly when compared to an inexperienced operator or one that is trying to hurry or cut corners. Combine operators should understand how losses occur and how to make the proper adjustments. Nearly 80 percent of harvest losses occur while cutting and gathering the plants into the combine. Most of these are due to shattering. The following recommendations will reduce gathering losses:

- Maintain ground speed at 3 mph or less. Higher speeds are reported to be possible with a draper head or when air is added to the head. Pods stripped from the stalks and uneven stubble are signs that the travel speed is too fast.
- Set the speed of the reel to run 25 percent faster than the groundspeed. For a reel with a diameter of 42 inches, this is 10 rpm/mph.
- If the beans are lodged, increase the reel speed up to 50 percent faster than the ground speed (11 rpm/mph).
- Position the reel axle 6 to 12 inches ahead of the cutter bar. Ideally, the reel should leave the beans just as they are being cut. Set the height of the reel just low enough to control the beans (generally the top 1/3 of the plants). In lodged conditions, operate the reel as low as necessary to pick up the plants.

Measuring Soybean Harvest Losses

Measuring gathering losses after each adjustment is the best way to verify your progress. In order to make the proper adjustments, the combine operator should stop the combine periodically and check the amount and type of loss that is occurring. Since 80 percent of the losses occur at the header, this article will focus on measuring gathering losses. Losses can also occur once the beans have entered the combine. However, the combination of these losses typically accounts for only 1 percent of the total harvest losses.

The first step is to build a frame having an inside area of 1 square foot. I use 1-inch PVC pipe. Next, stop the combine in a representative area of the field and back up 10 to 15 feet. Use the frame to count the number of beans on the ground in the harvested area in front of the header. Take at least four counts across the entire length of the header. For each count, record the following information.

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- **Shatter loss.** Count all the loose beans and beans in loose pods in the standing crop ahead of the combine and subtract this number from the number of loose beans and beans in pods you find in the harvested area.
- **Loose stalk loss.** Count all the beans in pods attached to plants that were cut but not gathered into the combine.
- **Lodged stalk loss.** Count all the beans in pods attached to plants that were not cut.
- **Stubble loss.** Count all beans in pods that remain on the stubble.

Determine the average losses in beans per square foot for each category and divide by four (four beans per square foot equals one bushel per acre). Use this information and the recommendations previously presented, to adjust your combine settings. Make one adjustment at a time and stop periodically to evaluate your progress toward reducing harvest losses to 3 percent.

Types of Loss	Sample 1	Sample 2	Sample 3	Sample 4
Loose stalk loss	3	2	2	3
+ Lodged stalk loss	2	2	3	4
+ Stubble loss	5	5	6	4
- Shatter loss	2	1	2	2
= Gathering Loss	8	8	9	9

Gathering Loss measurement example:

The average gathering loss in this example is 8.5 beans per square foot, which equals 2.1 bushels per acre.

$$(8 + 8 + 9 + 9) \div 4 = 8.5 \text{ beans/ft}^2$$

$$8.5 \text{ beans/ft}^2 \div 4 = 2.1 \text{ bushels/acre}$$

GREAT NEWS!!!!

STATE TO PROVIDE FUNDING FOR BUSINESS AND ENVIRONMENTAL PLANNING

The NYS Departments of Agriculture and Markets and Environmental Conservation recently announced the initiation of the Dairy Acceleration Program, designed to "enhance the profitability of New York dairy farms and to maintain a commitment to environmentally responsible growth." Under this program, dairy farms can receive cost-share funding for business planning, a new or updated Comprehensive Nutrient Management Plan (CNMP), design development for new or remodeled facilities, creation of a farmstead development plan, or a joint evaluation of financial and environmental needs of the facility.

Funding covers up to 80% of the project's cost, with the farm paying the remaining 20% and any amounts over the established program limits. Payments may include:

- Up to \$5,000 for business plan development or a combination of a business and facility growth plan
- Up to \$6,000 for development of a new CNMP
- Up to \$4,500 for updating an existing CNMP
- Up to \$3,600 for an initial and combined evaluation of financial and environmental needs of a farm.

Although the final three categories are restricted to dairy farms under 300 cows, the business plan development funding is available for larger dairies. Additional information and applications are available at http://ansci.cornell.edu/prodairy/dairy_acceleration/.

OSHA to Target New York Farms

By Rhonda Lindquist

Under the Occupational Safety and Health Act of 1970, all employers are responsible for providing safe and healthful workplaces for their employees. In the past, OSHA has not spent a lot of time inspecting farm operations in New York State for worker safety compliance, but that will change according to the state OSHA office.

A fatality on a Wisconsin dairy farm in 2009, followed by a five month investigation resulting in fines for violating seven OSHA regulations, triggered OSHA to launch what they call a *Local Emphasis Program* (LEP). Under this program, OSHA inspectors conduct random comprehensive safety and health inspections on dairy farms. It is anticipated that they will implement an LEP similar to the one modeled in Wisconsin on New York dairy farms.

In Wisconsin, OSHA has identified 12 (“Dairy Dozen”) common hazardous activities found on dairy farms that are emphasized during an inspection.

Manure Storage and Collection Structures – Some safety features inspectors will look for include safety stops or gates to prevent machinery from enter manure storage. Pits and lagoons must also be properly posted with warning signs and fenced off in a way to restrict accidental entrance of equipment or personnel.

Dairy Bull and Cow Behavior/Working Positioning – Workers not properly trained to working with dairy cows and bulls are at greater risk of being squeezed, crushed or pinned between the animals and structures such as fences or crowd gates. Educating employees on avoiding such pinch points, as well as planned escape routes if a cow or bull were to charge. Also, the use of personal protective equipment should be enforced, for example wearing steel-toes boots.

Electrical Systems – Damaged or improperly installed switches, circuit breakers, pumps, fans and augers are just a few areas where electrocution or shock could occur. Also, any place where an extension cord is being constantly used would require a permanent plug in.

Skid Steer Operation – Fatal or serious crushed-by, struck-by, caught in-between, rollover hazards may exist where employees are improperly trained, fail to use approved arm support devices when servicing or maintaining skid steer, and intentionally bypass safety features such as back-up alarms, seat belts and control interlock systems.

Tractor Operation – In addition to the items mentioned above under skid steer operation, tractors manufactured after 1976 must be equipped with roll-over protective structures.

Guarding of Power Take-Offs (PTOs) – Any shield or guard structures need to be in tact and in place to prevent fatal or serious entanglement and/or amputation.

Machine Guarding: Field and Farmstead Equipment – Hazards may exist where other power transmission components on equipment such as augers, conveyors, barn scrapers, ventilation fans and TMR mixers are not properly guarded.

Lockout – Unexpected Energy Release – Training must include the location of the energy source to various equipment and implements, particularly when performing maintenance, and how to turn it off.

Hazard Communication – Farm chemicals such as teat dips, hoof care and sanitization products, pose a risk if ingested, absorbed or splashed if they are stored, dispensed, and used without proper training. Safety Data Sheets must be readily assessable in English and any other language spoken by farm employees. Additionally, an eye wash station must be located in close proximity to where chemicals are stored.

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Confined Spaces – Serious or fatal **chemical asphyxiation, oxygen (O₂) deficiency, inhalation, engulfment,** and/or **caught-in hazards** may exist where there is entry into grain storage bins, vertical silos, hoppers, manure storage vessels, milk vessels, below grade manure collection systems, etc.

Horizontal Bunker Silos – Wall collapse, avalanches, fall protection while (un)covering, struck-by vehicles, and roll-overs when compacting are some of the hazards employees are faced with on horizontal bunk silos. Inspectors will look for potential falling hazards and protective devices.

Noise – “The rule of thumb is if you have to yell, you should be using hearing protection.”

Under current OSHA regulations, farms are exempt from OSHA inspections if they employ 10 or less workers during the past 12 months. Immediate family members in direct relation to the farm employer, such as a parent, spouse or child (also step-children, foster children, step-parents and foster parents) are not counted when determining the number of employees. Other relatives, even when living permanently in the same household as the employer, will not be considered to be part of the immediately family. A part-time employee is counted as “1” employee. **However**, farms with any number of employees can be inspected if they offer temporary housing for its workers.

Although some of you may be exempt from being inspected, we encourage all farms to begin reviewing their worker safety systems and protocols. OSHA visits are always unannounced, and the agency doesn’t release any type of schedule to allow certain regions of the state to get ready for the inspection. Two educational webinars, sponsored by NYFB, NEDPA, Pro Dairy and Farm Credit East, on OSHA compliance, are available to view at www.farmcrediteast.com/webinars.

Field Notes

By Nick Youngers

Frosted Corn: Some areas got a hard early frost. In talking with growers, I found many differing opinions and views. If the ear leaf is still green, it is better to let the corn mature and the ear progress. If the ear leaf has been killed, the ear will no longer progress. If the corn is immature, it will dry down slowly, so it may be better to chop it and separate it for heifers. Also, it is grower preference whether to put the corn in wet and save the sugar content or allow the corn to dry down and risk losing the sugar content. It would also be a good idea to consult your nutritionist as they will be the ones making recommendations on the frosted corn.

What we learned with a wet spring/early summer: One of the most important things we have learned is that wet areas/spots in fields definitely showed up. Growers should mark out those areas/spots and place tile lines this fall. Tile lines are a very good investment, whether the land is owned or rented. When you compare yield loss to the cost of tile, it will take very little time for the tile to pay for itself.

A quick note on fall manure spreading: It is important to remember that manure is best spread at low to moderate rates to reduce the chances of run off and leaching. Manure applied to fields with a growing crop, low soil P and K levels, or a cover crop will help insure nutrient stability.

Is it too late to fall-kill sod? When the temperature is above 60 degrees and things are actively growing, we can fall kill sods. For alfalfa sods, we recommend Glyphosate 4L at 2.0 quarts/acre, 2,4-D at 1.0 pint/acre and 8.0 ounces of Banvel/acre. For a grass sod, we recommend Glyphosate 4L at 1.5 to 2.0 quart/acre and 2,4-D at 1.0 pint/acre. Also, be sure to include the required adjuvants.

My corn has just been harvested and I would like to plant a cover crop. What are my options? Wheat and rye are the best choices for a mid to late October cover crop. However, rye is very aggressive in the spring and you will need to stay on top of it for spring kill or it will get ahead of you. Cornell University recommends a rate of 110 lbs/acre for a mid October planting of cover crop rye. They also recommend a seeding rate of 100 lbs/acre for cover crop wheat.

Randolph Office Welcomes New Technician

My name is Megan Boberg and I am a new technician in the Randolph office. I will be working with Dan Steward on farms in his territory. Here is a little history about myself!

Although not from a farm background, I have always had an interest in natural resources and the outdoors. I attended Morrisville State College, graduating with a Bachelors Degree in Renewable Resources. While attending school, I participated in numerous extracurricular activities and was President of the Conservation Tri-Society Club for two years.

In the summer of 2011, I was fortunate to intern with the USDA-NRCS Plant Materials Center in Big Flats, NY. This internship allowed me to work hundreds of acres with farm equipment daily on our various study plots. We conducted research on cover crops, seeding rates, and diseases. Through this experience, I realized that I enjoyed working with crops and the conservation aspects that go with it.

Since my internship allowed me to work on a farm without animals I wanted to try working on a farm with animals. When I returned to college I started working part-time on a dairy farm in Hamilton, NY milking 515 cows. Working at this farm over the next two years increased my interest in agriculture.

The summer of 2012, I interned again with USDA-NRCS, but this time I worked in the Jamestown, NY field office. While interning, I shadowed District Conservationist Robert Halbohm and Soil Conservation Technician

William Printup. Both Rob and Will educated me on the various conservation practices that are available to the public today and took me out into the field where I was able to work with landowners, understand their problems and concerns and help deliver a solution. Throughout the different projects we worked on, I found myself networking with other agencies, including the Farm Service Agency, Soil and Water Conservation District (SWCD), Cooperative Extension, and of course, the WNY Crop Management Association. I found it very interesting how each agency plays a different role, but work together to help better and make the landowners practices more efficient.

In the summer of 2013, I worked as a seasonal technician for the Chautauqua County SWCD. I found this experience very rewarding because I was able to see the changes being made on the landowner's properties as a result of the projects that I had helped plan the previous year. I really do enjoy stepping back and looking at the changes that have been made and how much it has improved production for the landowner.

I am so excited about this new opportunity and cannot wait to work with the farms in this area. I'm enthusiastic to serve our members and help make their operations more efficient and profitable. I hope to be able to step back after a few years and see how much has changed for the better for our members. I look forward to meeting everyone!

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