



Key Opportunities to Optimize 2018 Crop Production Efficiency

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Most farms routinely concern themselves with minimizing expenses and maximizing profits from both the animal and cropping parts of the operation, but these economic times have caused many to carefully peruse management plans to find some additional savings. It's always a good idea to avoid risky choices and to use sound, science-based information when planning management options. Here are some principles to guide springtime crop planning this year to minimize crop production input costs and risks.

Use your acres efficiently.

There are many fixed costs to farming an acre of land, regardless of the yield or quality harvested from it. Achieving higher yields and higher quality per acre will help control the overall cost of forage production. Focusing on meeting your forage needs on fewer acres may allow you to shed the cost of farming extra acres, or to add diversity with those extra acres with crop alternatives that will provide a better return.

When developing a cropping plan, it is important to remember that each acre has inherent limitations to its yield potential based in soil type, location, drainage, etc. Spending money on extra inputs to try to push an acre or a field beyond its production potential can be as costly as managing below its potential.

Carefully consider crop varieties and seeding rates.

Numerous advancements in a crops production potential; yield, quality, water and nutrient use efficiency and pest protection traits, have led to increased seed cost. Using available information to make accurate and efficient seed choices is a far better approach to seed cost control than evaluating seed price alone.

- Use only genetic traits that are needed on each field. The cost of weed or insect control traits in the seed, particularly with corn seed, contribute more to overall seed cost per acre than seeding rate or other factors. Corn Borer is not a big pest in NYS and is of particularly little concern on silage acres, so traits that control it are not likely to pay for themselves. Likewise, don't bother with Corn Rootworm protection on first year corn, but instead use it on 2nd year corn and beyond.
- Glyphosate-tolerant (or Roundup Ready) varieties are a worthwhile investment for fields with hard-to-control weeds, such as annual grasses, or in systems with cover crops or reduced/no tillage. But in other fields where weed populations are stable and may be routinely controlled with pre-emergence herbicide options, the odds of seeing a return on an investment in glyphosate-tolerant genetics is unlikely. A good understanding of weed populations and a good pre-emergence herbicide program can help reduce this cost.
- Choose corn varieties with realistic maturity ranges. Longer-season varieties are expected to yield slightly more, but only if maturity is reached. The gamble on additional yield from a long season variety should be minimized.



- Double-check seeding rates and calibrate your planters. Reducing alfalfa seed from 22 to the recommended 15 lbs per acre can save more than \$30 per acre in seed cost. (See Alfalfa Seeding Rates Revisited on page ???)
- Recommended corn planting rates vary with soil yield potential and range from 27,750 to 32,250 per acre for grain and 31,000 to 37,750 per acre for silage. Follow company guidelines for specific hybrids. Many corn growers may be reluctant to change corn planting rates based on a particular hybrid and/or soil type because of the extra hassle it requires to make these planter adjustments. Any situation that allows a corn grower to reduce corn planting rates by 3000 seeds per acre will reduce their seed cost by approximately \$10 per acre.

Manage tillage and equipment passes across the field.

Each tractor or truck trip across the field has a cost, in terms of fuel, time and soil compaction, and some are more justifiable than others. Look for opportunities to reduce trips across the field without giving up production. Since a large percentage of the damage done by heavy equipment is done in its first pass over the soil, controlling traffic patterns can limit damage to laneways and headlands and help keep the rest of the field in better conditions.

Reduced and no-tillage methods can provide significant cost savings on top of tremendous benefits to soil health; however, quitting tillage ‘cold turkey’ can result in poor crop performance in that first growing season. Understanding the current conditions of your soils is critical to a successful transition. Attempting no-till on soils with poor structure and compaction issues will often produce less than desirable results as it will inhibit seed placement and root development until soil structure recovers.

Tillage can be a band-aid for imprecisely adjusted planting equipment and/or less than ideal soil conditions. In other words, a properly setup and operated planter that is designed for the field conditions you have will do its job placing seed correctly with less or no tillage. Common advice from no-till farmers is to exercise patience and wait until conditions are correct to plant. While it may feel awkward to be sitting home while neighbors are working land, the time you save in not working land will permit you to plant faster and better when soil conditions are right.

Optimally capture manure and soil nutrients to reduce fertilizer needs.

An up-to-date soil test is cheap and valuable information. Soil fertility information allows you to focus nutrient inputs on acres where they’re needed and where yield benefits and return per acre may be maximized. Accurately reduce fertilizer applications (take a credit) wherever it’s possible.

- Take N credits for grass-legume sods and for soybeans in 1st year corn fields.
- Prioritize manure applications to 2nd and more year corn fields where N is most needed. Credit N fertilizer applications appropriately.
- Apply lime where the soil test says it’s most needed and where yield potential is highest. Correcting pH with lime takes time but pays big dividends in providing an optimal soil environment for the crop and making soil nutrients most available.

Evaluate real pest management needs.



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Don't rely on one chemical control and definitely don't reduce application rates to save costs on pest management. Like any other year, it is critical to employ a pest control program that minimizes the risk of developing resistance, so repeatedly using a single mode of action or reducing rates below label is not advised. Instead, reduce pest management costs through scouting and integrated pest management (IPM) to assure that only proper ingredients and controls are used. Knowing the pest, its population and the science of IPM will help to reduce unnecessary applications and unnecessary ingredients.

Before spending extra for insect control and herbicide tolerance traits in seed, be sure you have a reasonable expectation of a return on that additional cost. See above discussion of seed and varieties.

Focus on timely and flexible forage harvest and storage.

Good management of end-of-season harvest is key to capitalizing on your cumulative, season-long efforts. Creating a specific harvest plan maximizes the likelihood of harvesting each feed at the desired quality, regardless of what the growing season throws at you.

First cutting hay or haylage provides a huge opportunity for good yields of high quality feed but does not need to make or break your year. Consider each acre of hay land, and each cutting, as an opportunity to harvest the highest quality feed you need on your farm. Beginning with first cutting, be prepared to harvest each acre at a high quality stage if weather and circumstances allow. When inventory of lactating quality feed is sufficient, turn your attention to meeting the quality needs of other animal groups on the farm. Using this approach, high quality feed requirements are more likely to be met, leaving lower quality forages to be harvested when unforeseen weather and equipment challenges force delayed harvest.

Evaluate flexibility and potential to store forages in a way to allow access to forage lots at the right times for the right animal groups. If the ideal forage is buried at the back of the storage when you need to feed it, it has little value. And being forced to feed a low quality forage to a highly productive group of animals because it is the only one accessible can be costly.

Forage shrink can be very costly. Reduce shrink at the bunk by optimizing packing, matching forage delivery rate and packing tractor weights on bunks and driver over piles, selecting the proper inoculant for each forage and proper coverage to exclude oxygen. Proper face management at feed out will also aid in minimizing losses.

Additional resources:

1. 2018 Cornell Guide for Integrated Field Crop Management. Cornell University Cooperative Extension. <https://store.cornell.edu/p-199236-2018-cornell-guide-for-integrated-field-crop-management.aspx>

For help with field crop and soil management, contact your local Cornell Cooperative Extension office or your North Country Field Crops and Soils Specialists, Mike Hunter and Kitty O'Neil.

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Cornell Cooperative Extension North Country Regional Ag Team



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