



Management Solutions

Agronomic Solutions, LLC

Summer 2009 Issue



Plan Ahead: Cover Crops

Now is the time to plan for cover crops to be planted in late summer or early fall. Cover crops offer many benefits that increase farm profitability, environmental sustainability and should be considered an integral part of any farming system that wants to efficiently utilize nutrients, improve soil quality, and increase profitability. Target cover crops on fields you spread manure on during the summer fall and winter. This will help to “capture” some of the nitrogen and keep it around for the upcoming corn crop.

Choose the cover crop which creates the greatest benefit to you. Each cover crop has a special purpose. **Legume cover crops** are typically used to produce homegrown nitrogen. **Ryegrass cover crops (cereal rye or winter rye)** are used to increase soil organic matter, recycle excess nutrients, and reduce soil compaction. **Brassica cover crops (oilseed radish)** are grown to loosen the soil, recycle nutrients, and suppress weeds.

Cover Crops should be planted as early as possible in most cases—end of August or first of September. The seeding rates for annual ryegrass are:

Drilled = 15 lbs. per A Broadcast = 20 lbs. per A Aerial = 25 lbs. per A

Soybeans and later applications should be drilled and increase rates for later seeding. For more growth, increase the rate of seeding because competition makes taller plants. If aerial seeding, you need to watch for drifting. Drifting onto neighbor's wheat = problems! Consider drilling the outsides of your field to reduce drift. Make contacts now to start scheduling your cover crop applications by air.

Cereal rye is good if planted late in the season, mid to late October and can easily be applied with a dry spreader. Ryegrass is also great to pasture. For pasturing it is best if seeded early (July) after the wheat harvest, but may need to be sprayed in November to kill because it might get too big.



Select winter hardy varieties of grass for our area. Bounty is outstanding in winter hardiness, rust resistance and strong forage yields. It has the ability to root down to 5 feet after 3 years of use. This extensive rooting increases the soils organic matter, water infiltration, erosion control and will capture any available N and P left in the soil and hold for following crops. The benefits multiply from multiple years of application of cover crops. Three to four years of use will break up more compaction, especially good for fields with drainage problems. With Ryegrass soil nutrition can be managed much deeper than the normal 8". Continual use of annual ryegrass has shown dramatic yield increases, especially in drought years.



Deeper roots = deeper nodules = more soybean bushels

Radish must be planted early. It needs at least two months of growth before winter kill.

Winter peas can produce 100 lbs. N if you plant in August (early).

Again, cover crops are very important to your over all crop production. They improve the physical status of the soil, create more oxygen and eliminate soil compaction.

This is a seasonal publication produced by Agronomic Solutions, LLC for the confined feeding operators. Issues and information addressed in the newsletter will be geared towards animal feeding operation owners and managers. Hopefully you will find its contents useful in your operations. (574) 202-2608

Inside this issue:

<i>Plan Ahead: Cover Crops</i>	1
<i>Managing Silage Leachate</i>	2
<i>VRT Manure Application</i>	3
<i>New Indiana Law Affecting CFO's</i>	3
<i>EQIP Update</i>	3
<i>Manure in the News</i>	4

Managing Silage Leachate



Good water quality is a high priority for all rural residents. Since drinking water is usually obtained from ground water sources, every effort should be made to protect these ground water sources from contamination.

Silage is made by storing cut green forage in an oxygen-free environment. Silage leachate is the liquid that seeps from freshly ensiled forage that is more than 70 percent moisture. This leachate is rich in soluble sugars and proteins. It is corrosive to concrete and steel and can be extremely polluting to waterways. Silage leachate has a polluting potential 20 times greater than animal waste.

Given weather conditions this spring and summer, we stand a good chance of having problems this year. With late planting a lot of immature high moisture corn could be chopped and put into storage.

Silage leachate has an extremely high biochemical oxygen demand (BOD). This means that leachate has a very high potential for oxygen consumption and when discharged into surface water, it can remove so much oxygen that fish and other aquatic creatures die. As little as 1 gallon of silage leachate can lower the oxygen content of 10,000 gallons of river water to a critical level for fish survival.

Silage leachate contains nutrients that can harm groundwater, the most critical being nitrate-nitrogen. In addition, the acidic nature of silage leachate can burn or kill vegetation in the area where it drains. It may also cause health problems for humans and animals.

Effluent production for corn silage

Percent Moisture	Gal. of effluent per ton
Greater than 85 percent	100 to 50
85 percent to 80 percent	50 to 30
80 percent to 75 percent	30 to 5
Less than 75 percent	less than 5

Source: Peter Wright, "Silage Leachate Control,"
Silage Production: From Seed to Animal, 1997.

TO PREVENT LEACHATE—Harvest and store at proper moisture content

When silage is properly harvested and stored, it poses little to no pollution threat. Farmers can capture silage leachate by constructing lined ponds or collection basins. Such structures must meet prescribed setbacks from existing wells and surface water and are generally costly to construct.

As an alternative to costly structures, farmers can and should make efforts to minimize silage leachate production. Practices such as harvesting at optimal moisture content, firm packing of silage materials, immediate sealing, and maintaining proper feedout can enhance the nutrient content of silages and decrease the potential for silage leachate formation and runoff.



Covering the silage is an important management practice. Not only do covers preserve forage quality by minimizing airflow into the pile, covers also reduce leachate production by preventing rainfall from penetrating the silage and solubilizing nutrients.

Research at Kansas State University shows that covering a bunker silo with plastic can return \$8 in reduced forage losses for every \$1 spent. Additionally, from an animal performance standpoint, covering a bunker preserves feed value and improves palatability and feed intake.

Divert rainwater away from silage storage whenever possible. Plastic covers should be applied so that rainwater and snowmelt is channeled *off* of the forage pile. Maintenance of plastic also needs consideration; any holes in the covering of a silo or bag should be repaired immediately.

Leachate can be diverted to well-ventilated manure storage facilities or treated through the use of filter areas, absorption systems, constructed wetlands or vegetated leachate treatment areas. **CAUTION:** *Never mix silage effluent in enclosed tanks, especially tanks with barns because silage effluent mixed with manure slurry will accelerate the release of hydrogen sulphide gas. Add seepage only to uncovered outdoor storages.*



Don't let this come out of your silo.

WHAT TO DO IF LEACHATE HAPPENS

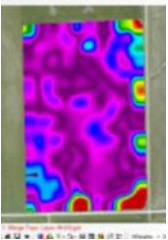
An emergency backup plan should be developed for those years when high moisture silage is unavoidable. Temporary runoff containment measures could be used, such as using sawdust to absorb and stop silage leachate runoff. The sawdust could then be collected and applied to fields.

Variable Rate Manure Application

Applying manure at variable rates (VRT) is an attempt to place the right volume of manure precisely where it is needed. VRT application can vary from inexpensive, low tech, common sense methods to more expensive, high tech electronic methods featuring all sorts of gadgets.

A few companies have developed complete “cadillac” systems and equipment that come at a high dollar. The University of Illinois has developed a more economic electronic system that allows for VRT liquid manure application on the fly. It’s portable and can be installed on either a drag hose or tanker system. The components can be acquired off the shelf, and the university can provide a general design schematic free of charge.

It all starts with developing a proper nutrient management plan: manure sampling to ascertain the nutrient content of the liquid manure and soil sampling to determine the areas of the field where more or less manure app is required. The information is cross-referenced in a software program producing a color-coded map indicating how many gallons of manure should be applied in specific areas of the farm. Each color represents a different volume requirement.



The producer must now determine what speed the tractor or truck should travel and at what specific manure flow rate to achieve the proper application. The biggest challenge is setting the flow rate because a liquid slurry will vary at times which will require a speed adjustment.

So how does the operator monitor all of this data during the application process? Un. of Illinois has assembled a list of system hardware detailing how it all ties in. The first item is a laptop that can be stationed in the cab so that the operator can monitor flow rate, speed, field location, and the color-coded application prescription in real time. They recommend the purchase of a touch screen so that it is easier for the operator to monitor the data. The second item is a

New IN Law Affecting CFO's

Senate Bill 221 passed by the Indiana legislature went into effect on July 1st. Senator Gard worked with interested parties to pass a ‘good character’ rule for CFOs (SB 221), giving IDEM authority to consider past actions of livestock producers who are seeing a permit to build or expand their operations. This added measure will seek to identify potential bad actors in the livestock sector without hindering the reliable livestock producers. This means that when your turn in your next IDEM application you will need to sign a disclosure stating any past environmental infraction in the past 5 years and mail notifications to all landowners/renters within a 1/2 mile from your operation.

GPS unit to monitor location and speed. The third is a flow meter and the fourth is the electronic interface developed by the university that ties all the elements together and transmits the information from the GPS unit and flow meter to the laptop or touch screen. As the operator drives across the field, he receives a constant flow reading on the monitor that, according to his chart, determines how fast he should be traveling based on his location on the field and the color code in that area.



Cost on this system varies. For example, if the operator decides not to purchase a touch screen, that represents a savings of about \$2000. The total cost of the system is well under \$10,000. After manure application is complete, all of the hardware components can be removed so that in the case of a farm tractor, it can be put to use in other areas.

Growers should balance their investment in time, effort, and cash for on-the-fly VRT application. Time is not always a critical element but cash usually is; so having the ability to make rate adjustments on the fly is not always that important. *All it takes to adopt some measure of VRT application of manure is common sense and working with qualified farm specialists to put a well-developed nutrient management plan into action.* It is possible to have precise manure application with only a **color-coded map** (developed from the data of the manure analysis and soil sampling) in hand and a **GPS unit**. The farmer simply adjusts his manure application volume based on where a GPS device tells him he is located on the field and cross-references that location with his color-coded map. Each grid on the map is treated like a separate field as far as manure application is concerned.

Contact me to get started with the manure and soil analysis. Then we can get the detailed color-coded maps for you to do VRT manure application. Keep in mind that nitrogen management become complicated once you start varying your manure rates on the go.

EQIP Update

The first round of 2009 contracts issued by NRCS for farmers who incorporate environmental improvement in their operations is over. *The second round was just issued a few days ago.* Chances are that your contract was not funded if you have not been contacted by your local DC this week. But your application will stay in for the 2010 money. Talk with your local Conservationist to see if you can add a practice to help your application rank better.

Now is the time to be looking to 2010. Get those applications in ASAP. The EQIP contracts for 2010 should not be delayed as they were in 2009.

Melissa Lehman
6560 S 700 W
Topeka, IN 46571

Phone: 574-202-2608
Office/Fax: 260-593-2092
E-mail: agronomicsolutions@embarqmail.com

Newsletter

website: agronomicsolutionsllc.com

Manure In The News

Manure to Power Fair’s Midway

One of the main attractions at the Tennessee State Fair will be the 8 ft. by 40 ft. mobile bio oil processor. Plans are to mix the manure from the 12,500 animals at the fair with hay, straw, bedding, cornstover and switchgrass. The MBOP will heat the material as high as 900°F. to collect gas and condense it into oil. It is expected to output 30,000 gal. of bio oil during the 10-day fair.

The bio oil will be used in 4 ways:

1. In its pure form, it can be sold at about \$.95 per gal. to hospitals and universities for use in boilers and burners for a cleaner burn.
2. Mixed with methanol, the bio oil will power the fair’s midway generators throughout the fair’s run.
3. Blended with petrol diesel, it will be used to power tractors, backhoes and other fair service vehicles.
4. A by-product, about 70 tons of bio-char (a mineral rich natural growing agent) will be **given** to fair goers for their use.

Entrepreneur Turns Load of Manure into Cash Cow

Rick Morris, Brentwood, TN, was out of money when a business idea got *dumped* on him. The contractor who specialized in widening driveways went broke after a client didn’t pay. His only asset was a pickup with half a tank of gas. Everything changed when a man offered to give him 50 large truckloads of manure – to sell. His first feelings of being insulted turned into the idea of starting an organic fertilizer business.

That was 1996. Today he has a thriving business called The Compost Farm. He’s relocated to a 120 horse farm, selling composted horse manure as soil, mulch and fertilizer to local gardeners. His one-man business has grown 200% in five years, and at times he struggles to keep up with the demand for his product.

83 Year Old Inventor Still At It

At 83, Henry Svehaug is still coming up with radical ideas to use an unavoidable product of the swine industry. From Oregon he showed up at the World Pork Expo in Des Moines with his latest invention, *a separator to recycle feed given to farm animals*.

A lot of things can be done with this machine. One is remove the solids from the liquids in hog manure. And one of the things you can do with what you get is feed it to cows.

"200 pigs feed 20 cows free!". The separated-out solids have a 13% protein content with all the liquid left for fertilizer.

Dates to Remember

July 29:	Manure Field Day
10:00 am	Whiteshire Hamroc Farm, Albion, IN
Aug. 11:	SWCD Pasture Walk
1:00 pm	Location: Bob Eash
	11325 E 550 S, Hudson, IN
	Pasture walk every 2nd Tues. through Nov.