Volume 11 Issue 1

DAIRY, LIVESTOCK AND FIELD CROPS NEWS

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Field Crop Weed Control Seminar

February 9-12 at your Local Extension Office

1.5 credits in Categories 1a, 10 & 21

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Changes with the Dairy, Livestock and Field Crops Team

Now doubt your business has been subjected to change over the past few years and right now ours is no different. Zaid Kurdieh, our farm business management specialist, resigned his position at the beginning of the year and we wish him well with his future endeavors. We will miss Zaid's passion for the subject matter and his willingness to go that extra mile to get the job done.

A number of you have asked how the funding of extension will impact the team. For 2004 Dave and I will continue with our positions as in the past while we hope to fill the farm business management position in the near future. If you have business management concerns with your farm or you have educational programming ideas please let Dave or I know. Realize it may take some time on our part to find an answer or find someone who can assist you. We will keep you informed as things develop.
Kevin Ganoe

"There's a bad guy out there"… Update on Leptospirosis(hardjo-bovis)

W. C. Stone
PRO-Dairy, Cornell University

Background

There are many different species of Leptospirosis. Two of them are both of the serovar hardjo, but they have different genotypes – hardjobovis and hardjo-prajitno. L. hardjobovis is thought to be very prevalent throughout the US. It causes early embryonic deaths and abortions of relatively early gestation fetuses. L. hardjo-prajitno is prevalent in the UK. For some ignorant reason, US vaccines have been designed to provide protection against L. hardjo-prajitno (which is not a problem in the US), but provide little protection against L. hardjobovis (which is prevalent throughout the US). A commercial vaccine that does protect against L. hardjobovis infection has been available and has been used in New Zealand, Australia, the UK, and Ireland. Pfizer recently obtained approval to sell the vaccine in the US under the name Spirovac.

Prevalence

Pfizer has worked with veterinarians in four areas of the US. The prevalence of L. hardjobovis in herds tested by these veterinarians has been approximately 30%, 82%. 51%, and 50% in OH, CA, FL, and WA/OR, respectively.

Is it in your herd?

You don't know unless you test for it. The New York State Diagnostic Laboratory can test for the organism using urine and blood samples. Additionally, if the herd veterinarian determines through an analysis of the herd's reproductive records that the herd is a "reproductive failure", then there may be state funding to cover the majority of the testing expenses. The results from the analysis of the reproductive records that led the veterinarian to conclude that the herd has severe reproductive problems should be included on the herd history form that accompanies the submitted samples. If the herd is deemed a "reproductive failure", then the cost to the producer for serology on 12 blood samples and Leptospire isolation on 12 urine samples may total $13. The charges for this amount of testing would normally be approximately $375. This program is scheduled to conclude very soon. Check with the Cornell Diagnostic Lab (607-253-3900) to see if the funding is still available.

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Sample collection procedures:

1. Identify twelve high-risk cows in the herd. They may be problem breeders or animals that have lost fetuses relatively early in gestation (try to keep abortions to less than 100 days carried calf).
2. Group the animals together for the most efficient collection.
3. Label sterile vials (milk collection vials work great) with the animal's ID.
4. Collect a red-topped tube of blood (labeled), and then give the animal 10 cc of Lasix, a diuretic, IV. Note: Lasix is labeled for a 48-hour milk and meat withholding.
5. Animals will urinate approximately every 10 minutes. At the second urine voiding, collect 20 ml of mid-stream urine. Collect it from the third voiding if you miss the second.

Place the samples on ice and ship via over-night mail to the Diagnostic Laboratory. Always place submitted samples inside of zip lock bags. Test results L. hardjobovis is diagnosed by exclusion; if the urine is positive, and the serology results do not indicate a different species of Lepto, then it is most probably L. hardjobovis. The effects on reproductive performance of various prevalence rates are not yet known.

Vaccination procedures and options

Like most vaccines, two doses approximately 2-6 weeks apart are needed the first time the animal is vaccinated. The animal should be boosted annually thereafter. The booster should be done prior to breeding. The vaccine appears to be very effective at preventing new infections, but it is not very helpful at clearing existing infections. Cattle that become infected with this form of Lepto are termed "maintenance hosts". This means they can remain infected for long periods of time, perhaps indefinitely. A single injection of LA200 (LiquamycinÒ) at a dosage of 9 mg/lb has effectively cleared animals of the infection. It would take approximately 65 cc of LA200 to treat a mature cow, costing around $6.00. Vaccine and treatment options include the following:

a. Vaccinate calves at approximately 5 and 9 weeks of age, then prebreeding or annually thereafter.
b. Follow "a", but also administer LA200 (9 mg/lb) at the second vaccination.
c. Vaccinate cows prebreeding, two doses initially, followed by a semiannual booster during the dry period or fairly soon post-freshening.
d. Follow "c" above, and also treat cows with LA-200 at dry-off.
e. Bulls should be vaccinated and treated with LA-200.

The vaccine will cost around $2.00 per dose. It is still recommended that the traditional 5-way Lepto vaccine be used annually, but not at the same time that Spirovac is given. Hopefully this product will be combined with other vaccines in the future.

Corn Rootworm Technology for the 2004 Growing Season: How Do They Compare?

Elson J. Shields
Department of Entomology, Cornell University

The 2003 growing season was a relatively good year for corn rootworm. Larval survival was very good despite the wet soils during the hatching period in late May and early June. The frequent rains and good soil moisture throughout the growing season allowed the corn plant to tolerate the root feeding by rootworms better than in 2002 which was much drier. The increased soil moisture promoted root regrowth after the larval feeding ended in mid-July and reduced the yield impact on the corn crop from rootworm feeding.

Performance of Insecticides with Yield (Pioneer 37M81)

Insecticide efficacy trials are conducted each year at both the Cornell Aurora Farm and the Cornell Harford Farm. The following data is from the Aurora farm where soil pH > 8.0 and excellent rootworm pressure was present in 2003 (Table 1).

Poncho Rate Confusion

Two rates of Poncho seed treatment are being sold for the 2004 growing season and great care must be taken to use the correct rate for the correct insect. Poncho 250 is the lower rate with 0.25 mg insecticide per kernel and this rate is very effective for the control of secondary pests like seed corn maggot. Poncho 250, which costs between $5-7 per acre, is not effective for the suppression or control of corn rootworm. Poncho 1250 is the higher rate with 1.25 mg insecticide per kernel. The 1250 rate has been very effective against corn rootworm in Cornell University trails for the past several years. This higher rate also is very effective against the secondary pests controlled by the 250 rate. The cost of the 1250 rate should fall between $16-19 per acre.

Table 1 Corn Rootworm Soil Insecticides: Efficacy, Cost Range and Yield

Insecticide Rate	Root Rating (1-6)	Cost/ Acre	Yield T/A (35% DM)
Counter *6oz/1000*	2.75	$18-21	17.9 ab
Force *4oz/1000*	2.00	$16-18	17.1 ab
Lorsban**** *8 oz/1000*	4.15	$16-18	17.1 ab
Poncho 1250	2.40	$18	20.6 a
Untreated Check	5.10	$ 0	16.2 b

* values followed by the same letter are not significantly different.

****This is typical performance of Lorsban in soils with the pH > 7.5. In soils with pH<7.5, a typical root rating at this level of pressure would be 3.0-3.5. Economic losses from rootworm usually start occurring when the root rating exceeds 3.5.

Granular Soil Insecticide - Less than Label Rates

In past years, 75% of label rate has been shown to be effective against moderate levels of rootworms if equipment is well calibrated to insure accurate dispensing of the insecticide and soil moistures remain at good levels between planting and July 15th. When rates are reduced to 50% of label rate, rootworm control is often variable. In addition, the physical limitation of granular insecticide boxes seems to be 3-4 oz material per 1000 linear ft of row. When rates fall below this level, distribution of the granular material is often erratic. Both dry conditions and prolonged wet soils degrade the performance of granular insecticides. Under these conditions, less than label rates may provide less than acceptable protection of the corn roots.

Performance of YieldGard Rootworm with Yield (Dekalb DKC 53-29 & DK 53-33)

Corn rootworm resistant corn has been released for the commercial growers throughout the Corn Belt. Registration decisions by NYDEC about rootworm resistant corn are expected by March 1, 2004. BT-Rootworm corn has been tested in NY corn rootworm university trials for the past several years and the performance against rootworm has been very good. Listed in Table 2 are the results from the 2003 trial conducted at the Cornell Farm located at Aurora.

Advantages of YieldGard Rootworm

YieldGard Rootworm incorporates the toxin for corn rootworm within the corn plant. This incorporation of the toxin into the plant makes the effectiveness of the toxin independent of soil environmental conditions, which often degrade the performance of soil insecticides. As a result, the control of rootworm is consistent across all environmental conditions and levels of soil saturation.

Table 2. YieldGard Rootworm: Efficacy, Cost Range and Yield

Insecticide Rate	Root Rating (1-6)	Cost/ Acre	Yield T/A (35% DM)
YieldGard	2.00	$23-24	20.8 a
Isoline + Force	2.15	$16-18	21.0 a
Untreated Check	4.6	$ 0	15.7 b

* values followed by the same letter are not significantly different.

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Disadvantages of YieldGard Rootworm

When a field of YieldGard Rootworm is planted, regulations require that a refuge be maintained equaling 20% of the acreage planted to YieldGard Rootworm. The refuge needs to be planted in a field immediately adjacent to the YieldGard Rootworm field or as a block within the YieldGard Rootworm field. The refuge corn needs to have the same field history as the YieldGard Rootworm field and be grown under similar cultural practices. Soil insecticide effective on corn rootworm should be used on the refuge to protect the corn yields and to maximize the emergence of adult rootworms beetles, which are available to mate with any potentially resistant rootworm beetles to dilute any genetic resistance and prevent the development of resistant insects. Cornfields most likely to benefit from this new technology are fields with histories of 3 or more years continuous corn.

New technology in future years

YieldGard Rootworm known as Mon 863 is the first of BT toxins active against corn rootworm incorporated into the corn plant's genetic code to reach the market and follows on the heels of the successful YieldGard, targeted at corn borer. Various companies are developing other toxins active against corn rootworm. One example is a toxin called "strain 149' being developed by Pioneer. Pioneer plans to market this new technology within the next couple of years. In late October 2003, Monsanto was nationally granted clearance (not yet in New York) to market a "stacked product" which was the combination of the corn borer toxin (Mon 810) and the corn rootworm toxin (Mon 863) in the same corn hybrid.

Common Ragweed Problems and Control In Field Corn

Russell R. Hahn and Paul J. Stachowski
Department of Crop and Soil Sciences, Cornell University

There have been increasing concerns and questions about common ragweed control in field corn in recent years. When ragweed control is less than expected/desirable, the possibility of triazine-resistant biotypes is usually among the explanations. Over the past 10 years, a number of ragweed seed samples from around the state have been subjected to greenhouse bioassays to determine whether they were from triazine-resistant populations. Seed collected in 1992 from the Bainbridge area was among the first tested and was confirmed as triazine-resistant. Only one other sample has been triazine-resistant. After finding most of the "suspect" populations to be susceptible to triazine herbicides, doubt about the original diagnosis led to rechecking seed from the Bainbridge site this past winter. It once again proved to be a triazine-resistant population of common ragweed.

What other reasons might be responsible for the poor ragweed control in those fields where the ragweed populations proved to be susceptible to the triazine herbicides? There are several possibilities. First, corn growers have reduced atrazine application rates. Atrazine label changes in 1990 and again in 1992 reduced use rates from a maximum of 4 pounds active ingredient/acre (Ib ail A) to 3 and 2.51b ail A in 1990 and 1992 respectively. In addition, the 1992 changes included a preemergence (PRE) application maximum of no more than 1.6 or 2 lb/A depending on soil erodibility and tillage practices. Because of these label changes and because of rotational concerns, most corn growers apply between 1 and 1.6 Ib ai/A of atrazine. In addition, no-tillage/zone-tillage corn acreage has been increasing across the state. With reduced-tillage systems, pH of the surface layer of soil may be significantly lower than the pH of the 0-to 6-inch soil sample that is normally collected for testing. A low pH in the surface layer may adsorb (tie-up) triazine herbicides and result in reduced weed control. As a result, no-tillage/zone-tillage fields should have two samples: (a) a 0 to 1-inch depth sample checked for soil pH only and (b) a 0 to 6-inch sample analyzed for both pH and nutrients. Finally, above average rainfall in May and June may also contribute to reduced ragweed control by diluting the herbicide in the surface layer of the soil profile and allowing ragweed to break through late in the season.

While there are many postemergence herbicides with good to excellent activity against triazine-susceptible and triazine-resistant ragweed, there are few good choices for PRE programs in fields with triazine-resistant populations. Herbicides like Prowl, Python, and Callisto all have good activity against triazine- resistant common lambsquarters, but they rate only poor to fair for all biotypes of ragweed. Another herbicide that has activity against ragweed is Hornet

WDG. Hornet WDG was originally registered for postemergence use only in NY State with a maximum application rate of 2 oz/A. As of September 2003, NY State has expanded the registration of this product to include PRE applications at rates up to 5 oz/A of product.

Field Research

Field experiments were established in 2002 and 2003 near Valatie and Aurora, NY to evaluate PRE and mid-postemergence (MPO) herbicide programs for common ragweed control in field corn. Ragweed populations at both locations were of triazine-susceptible biotypes. The focus of these experiments was to determine the role that mesotrione (as Callisto or in the premix products of Camix and Lumax) and clopyralid (Stinger), as a component along with flumetsulam (Python) in Hornet WDG, might play in control programs for either triazine-susceptible ortriazine-resistant biotypes of common ragweed. In 2002, 6 oz/ A of Callisto was applied PRE with 1.33 and 1.66 pt/ A of Dual II Magnum of Valatie and Aurora respectively. In addition, MPO applications of 3 oz/A of Callisto alone and in combination with 0.5 pt/A of AAtrex were made following PRE applications of Dual II Magnum. A review of the 2002 results from Valatie, in the Hudson Valley, showed the PRE application of Dual II Magnum plus 6 oz/A of Callisto and the PRE standard of 1.1 qt/A of Bicep Lite II Magnum controlled only 65 and 55% of the ragweed respectively. At Aurora, the PRE combination of Dual II Magnum plus 6 oz/ A of Callisto provided 86% late season ragweed control compared with 91 % control with a PRE application of 1.5 qt/ A of Bicep Lite II Magnum. When averaged over both locations, sequential MPO application of 3 oz/A of Callisto following a PRE application of Dual II Magnum controlled 89% of the ragweed while sequential applications of 3 oz/A of Callisto tank mixed with 0.5 pt/A of AAtrex provided 99% control.

Preemergence Results in 2003

In 2003, 2 and 2.4 qtlA of Camix (Dual II Magnum and Callisto) and 2.5 and 3 qt/A of Lumax (Dual II Magnum, Callisto, and AAtrex) were applied at Valatie and Aurora respectively. In addition, PRE applications of HornetWDG (Python and Stinger) were made in 2003 at 2 and 3 oz/ A at Valatie and at 2 and 4 oz/A at Aurora in combinations with Dual II Magnum. Ragweed control ratings and grain corn yields for these PRE treatments are shown in Table 1. At Valatie, the PRE standard of 1.1 qt/A of Bicep Lite II Magnum controlled 66% of the ragweed, while 2 qt/A of Camix and 2.5 qt/A of Lumax controlled 55 and 88% of the ragweed respectively. Grain corn yields were 107 and 129 Bu/A for the Camix and Lumax treatments respectively. Ragweed control at Aurora was 88% with 1.5 qt/A of Bicep Lite II Magnum while 2.4qt/A of Camix controlled 75% of the ragweed and 3 qt/A of Lumax provided 96% ragweed control. Grain corn yield with the Lumax treatment (189 Bu/A) was higher than with the Bicep Lite II Magnum treatment (175 Bu/A). The Camix treatment yielded 180 Bu/A. While the three-way premix (Lumax) that contains AAtrex provided better ragweed control than the two-way premix (Camix) of Dual II Magnum and Callisto, the addition of 1 pt/A of AAtrex to the Lumax treatments did not increase ragweed control or grain yields at either location.

Ragweed control at Valatie at the end of July was only 33 and 64% (Table 1) with applications of 2 and 3 oz/A of Hornet WDG applied PRE with 1 pt/A of Dual II Magnum. As control increased from 33 to 64%, grain corn yield in- ceased from 79 to 98 Bu/A. At Aurora, the 2 and 4 oz/A rates of Hornet WDG applied PRE with 1.33

Table 1. Common ragweed control ratings and grain corn yields with PRE treatments at Valatie and Aurora in 2003.

	Rate (Amt/A)		Control (%)		Yield (Bu/A)	
Herbicides	**Valatie**	**Aurora**	**Valatie**	**Aurora**	**Valatie**	**Aurora**
Bicep Lite II Mag	1.1qt	1.5qt	66	88	112	175
Camix	2 qt	2.4 qt	55	75	107	180
Lumax	2.5 qt	3 qt	88	96	129	189
Dual II Magnum	1pt	1.33pt	0	28	13	130
+ Hornet WDG	2 oz	2 oz	33	63	79	184
+ Hornet WDG	3 oz	4 oz	64	89	98	180
Untreated			0	0	11	141
LSD (0.05)			9	7	25	14

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pt/A of Dual II Magnum provided 63 and 89% ragweed control on August 1. Grain yields for these two treatments averaged 182 Bu/A and were not different. These results suggest that PRE applications of less than 4 oz/A of Hornet WDG are not adequate for good ragweed control.

MPO Results in 2003

Common ragweed control with M PO (7 to 8 inch ragweed) applications of 3 oz/A of Callisto following PRE applications of Dual II Magnum averaged 66% for the two locations (Table 2). The addition of 0.5 pt/A of AAtrex boosted control to 93%. The addition of AAtrex to the Callisto treatments boosted grain yields as well. At Valatie, grain yield increased from 95 to 131 Bu/A and from 176 to 190 Bu/A at Aurora. Following PRE applications of Dual II Magnum, MPO applications of 2 oz/A of Hornet WDG alone and in combination with 2 oz/A of Clarity provided an average of 69 and 75% ragweed control respectively compared with 84 % control with MPO application of 8 oz/A of Clarity. Grain yields for these three treatments averaged 82 and 172 Bu/A at Valatie and Aurora respectively and there were no differences between them at either location.

Table 2. Common ragweed control ratings and grain corn yields with MPO Callisto and Hornet WDG treatments at Valatie and Aurora in 2003.

Herbicides	Rate (Amt/A)	Control (%)	Valatie Bu/A	Aurora Bu/A
Callisto	3 oz	66	95	176
Callisto + AAtrex	3 oz .5 pt	93	131	190
Hornet WDG	2 oz	69	75	172
Hornet WDG + Clarity	2 oz 2 oz	75	83	170
Clairity	8 oz	84	89	175
Untreated		0	11	141
LSD (0.05)		8	25	14

Conclusions

These preliminary results suggest that Hornet WDG may be a viable PRE option with triazine-resistant common ragweed populations though applications of less than 4 oz/ A do not seem adequate for good ragweed control. The results with the mesotrione products Callisto and Lumax (Camix is not registered for use in NY State) clearly indicate these products benefit from the addition of AAtrex to the PRE or MPO applications. While these combinations should provide good control of ragweed populations that are susceptible to triazine herbicides, they may not be the best choice for triazine-resistant common ragweed.

What's in My Milk Replacer?

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Dept. of Animal Science
Cornell University

Milk replacers for ruminant animals can contain a variety of ingredients to provide protein, carbohydrate and fat sources. A number of questions regarding the protein sources used in milk replacers have been asked as a result of the current concern with BSE (bovine spongiform encephalopathy). These questions are primarily related to the protein sources being used in milk replacers.

The primary protein sources used in milk replacers are from milk protein sources. These protein sources are derived from milk processing and manufacturing. The most common milk protein sources used are:

- Dried whey
- Dried whey product
- Dry whey protein concentrate
- Dried milk protein
- Dried skimmed milk
- Delactosed whey
- Whole milk solids

In addition to these milk based protein sources, there are a number of other protein sources that may be used in some milk replacers. These include:

- Soy protein isolate
- Soy protein concentrate
- Soy flour
- Modified wheat protein

There can also be some specially treated blood plasma products used in milk replacers. According to the 1997 FDA (Food and Drug Administration) ruling, blood products are permitted in animal feeds. The prion that causes BSE has not been found in blood therefore using blood products does not provide a route of infection. If any blood derived protein sources are used in milk replacers, they should be listed as follows:

- Animal plasma - Spray dried animal plasma - Spray dried animal blood cells

How do I know what is in my milk replacer? This question can be answered by looking at the list of ingredients on the milk replacer bag. The protein sources used are usually the first 2-4 ingredients listed. This will allow you to determine if all milk or a blend of protein sources are used. Most companies manufacturing milk replacers offer a number of products. The ones with only milk protein sources are usually the most expensive due to cost of these ingredients.

It is possible that some milk replacers currently fed do contain animal protein sources. The FDA permits the use of these products. You will need to determine if the milk replacer you are using contains animal protein sources. If you are concerned about using a milk replacer containing animal protein sources, check with your supplier and switch to a product that does not contain animal protein sources.

Field Crop Weed Control Seminar

February 9-Extension Office, 55 East Main St, Suite 210, Johnstown
February 10-Extension Office, 99 North Broad St, Norwich
February 11-Extension Office, 123 Lake St, Cooperstown
February 12-Extension Office, 5657 State Route 5, Herkimer

Time: 1 pm to 2:30 pm

How to identify common and not so common annual, biennial and perennial weeds and what you can do about them.

Approved for 1.5 DEC Pesticide Applicator Recertification Credits in Categories 1a, 21, & 10

Course will be $10 per person and include a 2004 Cornell Guide for Integrated Field Crop Management. Registration is required and the deadline is one week prior to the seminar you wish to attend.

Call 315-866-7920 with your reservation.

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