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CROP WATCH

University of Nebraska Cooperative Extension
Institute of Agriculture and Natural Resources

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Updated budgets reinforce benefits of rotations

The economics of rotated corn was last addressed in the March 4, 2005 *CropWatch*; however, we have since revised our budgets to reflect fuel and material prices that are more current and extended our analysis to make a direct comparison of continuous corn, corn-soybean and corn-corn-soybean rotations. Many producers have experienced outstanding yields for corn in recent years, but their soybean yields have not been as outstanding. Hence, we will consider a corn-corn-soybean rotation.

We also have updated the budgets to reflect changes in seed selection (Roundup Ready Soybean and Bt corn rootworm hybrids) and have compared the rotations using a no-till system throughout to reflect the increased interest in conserving moisture as water restrictions are more widespread.

The results (*page 73*) of our updated comparison between continuous corn and corn-soybean are very similar to our report in March where the corn-soybean rotation had an advantage of $79.60 per acre. Our revised analysis reports a difference of $63 per acre with most of that difference resulting from using a lower soybean price and a higher yield for continuous corn. In spite of the changes in the production costs budgeted, the difference in costs between the continuous corn and corn-soybean rotations was within $1 of our earlier estimate.

Analysis of 20 production years shows corn-soybean rotation provides, on average, $63 per acre more than continuous corn and $21 per acre more than corn-corn-soybean.

(See page 73 for budget details.)

To compare corn-corn-soybean to corn-soybean we used our yields from continuous corn for the second year of corn in the corn-corn-soybean rotation. Our analysis shows the corn-soybean rotation with an advantage of $21 per acre (the difference in net remaining for land, management, machinery interest and overheads after covering our budgeted costs). At $5.50 per bushel it would require 3.8 bushels of soybeans to make up the $21 difference and since only one-third of the

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Inside

How chloride can influence soybean yield response to irrigation

Two years ago we conducted an experiment at the Haskell Agricultural Laboratory in northeast Nebraska to determine the phytotoxic effects of sprinkler applied swine manure on corn and soybean. One outcome of that work was the review of some Arkansas research that indicated soybean has a genetic trait that may result in pumping chloride from soils through the plant to the leaves.

Once in the leaves, the plant experiences symptoms of water stress even though adequate soil water is present. Not all soybean varieties exhibit this trait; however, preliminary trial results suggest that varieties planted in Nebraska could exhibit this trait. In fact, of the seven varieties evaluated using the Arkansas research protocol, six exhibited the trait of pumping chloride to the leaves.

How could this become a Nebraska issue? Chloride dissolves

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Ag briefs

John Wilson, Extension educator in Burt County: Field work is just starting up again after two weeks of rainy weather (about 5 inches total). Rain was welcome for the most part, although some bottom ground still has water standing on it. Frost damage was minimal since only the earliest planted crops emerged. Pastures and alfalfa responding nicely to some rain.

Gary Zoubek, Extension Educator in York County: Most of the producers in the York County area are just now really getting started, with serious planting starting on Sunday and Monday! We've received about 4.5 inches of rain the past two weeks, so our moisture condition has improved.

John Hay, Extension Educator in Pierce, Madison and Wayne counties: Recent rains have slowed field work, stopping it in some areas while other areas are just beginning to plant corn. Sandy areas of Pierce County are getting planted first with heavier soils to follow. Moist cold and windy conditions are prevalant, which could mean cooler soil temperatures for now. We were happy to see the rain, but where it was heavy, there has been lots of soil erosion down slopes. The disks will come out to fix the gullies so we can ignore them and forget they were ever there. There was warning of frost over the weekend, but no adverse effects have been evident to me, although some gung ho gardeners may have been stung a bit.

Rotation benefits

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acreage is in soybeans in a corn-corn-soybean rotation, an 11.4 bushel per acre soybean yield increase would be required for a breakeven (3.8 x 3 = 11.4). That would be a yield increase of over 20% using our 10-year average soybean yield of 56 bushels per acre.

Another comparison that is likely of interest given the soybean rust threat is how much of a soybean yield loss would be required to favor planting more corn? Our budgets indicate a 40% soybean yield reduction or a 33 bushel per acre soybean yield would result in a breakeven between the continuous corn, corn-soybean and corn-corn-soybean rotations.

Roger Selley, Extension Agricultural Economist
South Central Ag Lab
Bob Klein, Extension Crops Specialist, West Central REC
Terry Hejny, Extension Educator, Fillmore County

Bean breeder joins faculty at Panhandle REC in Scottsbluff

The University of Nebraska Panhandle Research and Extension Center has hired Dr. Carlos Urrea as dry edible bean breeder. In announcing the appointment, Dr. Chuck Hibberd, director of the Panhandle Center, said Urrea will hold the rank of assistant professor and will have both research and extension responsibilities.

Urrea comes to the Panhandle from Nepal, where he spent nearly two years leading a project to develop high-quality varieties of maize that grow on hillsides to help alleviate malnutrition in that country. Prior to Nepal, he worked as a research associate scientist at the International Center for Maize and Wheat Improvement (CIMMYT) in Mexico, where he developed new subtropical varieties and hybrids of corn.

Dr. Carlos Urrea

He received his doctorate in plant breeding and genetics, with a minor in statistics, from North Dakota State University. At NDSU he worked as a graduate research fellow

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Comparing cropping options *(Continued from page 72)*

Table 1. Continuous vs. Rotated Corn Budget, 1985-2004 irrigated yields, UNL South Central Agricultural Laboratory, Clay Center.

		No-till Corn following corn CC	*No-till Corn following Soybeans*	*Soybeans*	*Corn-Soybeans CB*	*CB & CC Difference*	*CCB*
1	**Yield (bu/ac)**	181.40	189.40	56.10			
2	**Price/bu***	$2.24	$2.24	$5.60			
3	trucking/bu	0.06	0.06	0.06			
4	drying/bu	0.20	0.10				
5	Net/bu	$1.98	$2.08	$5.54			
6	Net Revenue/ac	$359.72	$394.52	$310.85	$352.69	-$7.03	$355.03
7	**Water**	9	9	6	7.5		8.00
	Fuel & Lube, Deprec & Repairs/ac						
8	Irrigation	50.45	50.45	33.63	42.04	8.41	44.84
9	Field Operations	32.74	32.88	21.39	27.13	5.60	29.00
	Materials						
10	Seed incl seed trt	33.51	38.21	38.89	38.55	-5.04	36.87
11	N lbs/ac	163	125				
12	@ $0.22	$36.34	$27.92		$13.96	$22.37	$21.42
13	Starter	6.84	6.84		3.42	3.42	4.56
14	Herbicide	29.20	29.20	9.21	19.21	10.00	22.54
	Insecticide, fungicide						
15	CRW	17.77			0.00	17.77	5.92
16	Corn borer, other	0.56	0.56	3.50	2.03	-1.47	1.54
17	**Custom**	0.70	0.70	2.00	1.35	-0.65	1.13
18	**Subtotal**	$208.09	$186.75	$108.62			
19	incl trucking, drying	$255.25	$217.06	$111.99			
	Labor						
20	Labor hours	1.03	1.03	0.80			
21	@ $10.00/hr	$10.30	$10.34	$8.00	5.57	4.73	9.55
	Subtotal incl labor	$265.55	$227.40	$119.99	117.70	147.86	204.31
	Operating Capital						
22	8.0% Interest for 8 months	$14.16	$12.13	$6.40	9.27	4.90	10.90
23	Total listed cost/ac excl trucking & drying	$232.55	$209.22	$115.82	$162.52	$70.03	185.86
24	Net for land, management, machinery interest and overheads	$127.17	$185.30	$195.03	$190.17	$63.00	169.17
			Bean yield increase needed for CCB = CB				11.4
							20.3%

* Average harvest price/bu received by Nebraska producers, 1995-2004

Herbicide options for sunflower

Weed control in sunflower begins with good weed control in the previous crop and placing sunflower in a rotation where warm-season broadleaf weeds are easily controlled in previous crops. Sunflower is usually planted at lower densities than many other crops and it grows slowly during the first two to three weeks. Weeds that emerge and establish during this time can be very competitive and reduce sunflower yield potential tremendously; however, sunflower is a strong competitor with weeds that emerge three or more weeks after sunflower emergence. Therefore, maintaining weed-free sunflower for the first three to four weeks after planting will minimize yield losses from weeds.

Pre-emergence herbicides

Soil-applied herbicides available for use in sunflower are EPTC (Eptam®), ethalfluralin (Sonalan®), S-metolachlor (Dual Magnum®), pendimethalin (Prowl® H_2O and others), sulfentrazone (Spartan®), and trifluralin (Treflan™ and others). Eptam, Sonalan, and Treflan require mechanical incorporation soon after application. Prowl requires incorporation with tillage or rainfall within seven days of application or performance will suffer. Although there are many benefits to growing sunflower in no-till or reduced-tillage systems, cheap, effective, and consistent weed control is most easily achieved with preplant incorporated herbicide treatments. (See *page 77* for table of pre-emergence herbicides for sunflower.)

With the exception of Spartan, soil-applied herbicides primarily control grassy weeds such as foxtail, sandbur, stinkgrass, and witchgrass. All these grass control herbicides provide some level of control of small-seeded broadleaf weeds such as pigweed and lambsquarters. At higher use rates, they also can provide acceptable to poor control of kochia and Russian thistle. Spartan provides control of pigweed, kochia, Russian thistle, and lambsquarters. Spartan should be tank-mixed with a herbicide that will control grasses to obtain optimum weed control. Some crop injury has been reported from using Spartan. The injury is typically restricted to high pH, low organic

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Chloride influence *(Continued from page 71)*

in water and will move through the soil profile similar to nitrates. Arkansas has areas where the natural chloride concentration can exceed 200 ppm. In Arkansas they have also documented 20-30% yield reductions due to irrigating with groundwater high in chloride.

Though Nebraska has few, if any, areas with natural concentrations at that level, we do have the potential for man-made areas. Some water sample results acquired from a commercial laboratory seem to suggest that areas with long-term animal production facilities could have elevated chloride levels. The level of salt in the animal's normal diet, the manure distribution history for the area, and the length of time the feedlot has been in operation may contribute to this issue.

Another concern would be for areas with long-term histories of potash application. Since potash is potassium chloride, applications to meet plant potassium needs could result in chloride leaching. Certainly areas with both factors would have a greater potential for elevated chloride levels.

What is unclear is the concentration required to limit yield response to irrigation and which varieties would be affected. For example, yield response to irrigation might become limited when irrigating with water at a chloride concentration of 30-50 ppm or lower. This scenario would result in dryland yields being similar to irrigated yields. One indicator of whether chloride could be an issue is groundwater nitrate concentration. An Extension project in Holt County found that groundwater nitrate and chloride concentrations tracked each other over a three- to four-year period. That particular site was irrigated and had a history of potash applications on a loamy sand soil, with shallow groundwater.

If your field site has received multiple applications of a material containing chloride, and soybean don't seem to respond to irrigation, it might be beneficial to have the irrigation water supply analyzed for chloride content. This test generally costs less than $10 and could provide one factor that limits soybean yield.

Since not all soybean varieties exhibit this trait, one option for those with elevated chloride concentrations is to request information about the varieties being planted. In the short-term, a limited amount of information likely will be available on most Nebraska hybrids. As time goes on, more information should be available. The other option is to plant some other crop on the acres affected by elevated chloride levels.

Bill Kranz
Extension Irrigation Specialist
Charles Shapiro
Extension Soils Specialist,
both at the Northeast REC
Charles Wortmann, Extension
Nutrient Management Specialist

In long-term tillage comparison

Good growing conditions lead to high yields

Warm, wet weather across much of eastern Nebraska in 2004 gave some producers higher than normal yields. A long grain fill period helped make up for the slow accumulation of GDDs during the growing season. In many areas, differences in tillage systems, planting dates, or other management factors made large differences in productivity. Producers often wonder how different tillage systems will perform, both in a year like this one and over the long-term.

The 2004 yields for a long-term tillage system study on the University of Nebraska Rogers Memorial Farm (10 miles east of Lincoln) are given in the table. These research plots, established in 1981 in a dryland soybean/grain sorghum rotation, are showing that long-term no-till builds soil structure, usually has the highest yield, and is the most profitable. This was shown again in the no-till soybean yields, which were about 0.5 to 2.2 bu/ac higher than the other tillage systems without the costs associated with tillage.

While the rains helped yields, when combined with a long season, they allowed for some late season weeds to grow as the residual herbicides ran out. This was evident primarily in grain sorghum production where there aren't as many herbicide choices and crop growth was slower because of the lack of heat. The no-till treatment in this study had grass weed control problems on both sets of plots, primarily with sandburs creeping in from the field margins over the last few years.

Each year tires carry the burs further into the field, indicating the need for weed control, even in field margins. Sandburs were not a major problem in the first 20 years of these plots and have started increasing recently. Rotation with RoundUp Ready soybeans has helped keep them in check, but not enough to control them. Actually, overspray onto the field margins has killed some of the desirable bromegrass and has allowed the later season sandburs to grow without competition. In the plots, row crop cultivation has provided enough additional control to reduce the spread in those treatments.

Tillage System	Yield, bu/ac*	
	Soybeans	*Grain Sorghum*
Fall plow, disk, disk	65.3	152.8
Fall chisel, disk	65.1	143.6
Disk, disk	66.6	144.7
Disk	67.6	150.5
No-till with cultivation	65.1	148.4
No-till without cultivation	68.3	129.9**

*Full plot harvest with a combine and weigh wagon; corrected for moisture.
**146.1 bu/ac without reps with weed control problems

With replicated treatments, the variation in yield reduction can be seen when looking at individual plots. The no-till replication on the field edge, next to a grassy access road with sandburs, yielded only 114.9 bu/ac. The no-till replication on the other end of the plots, next to end rows where sandburs are creeping in, yielded 128.7 bu/ac. With very few sandburs, the replication in the center of the plot area yielded 146.1 bu/ac. Likewise, the no-till with cultivation replications yielded 146.2, 156.3, and 142.6 bu/ac, respectively, showing the value of row crop cultivation when weed control is needed.

As there are no effective herbicide treatments for sandbur control in grain sorghum, a management change is needed to address this problem in continuous no-till. This season, year 25 of the study, one set of the plots will be switched to a corn/soybean rotation and RoundUp Ready corn will be used to allow a wider selection of herbicides for sandbur control. The other set of plots, in soybeans this year, will continue in the long-term grain sorghum/soybean rotation.

As with any production system, small problems need to be addressed so that they don't expand into large problems over the years. Crop rotation, which allows herbicide rotation, is a valuable tool to address many pest problems, especially in continuous no-till. The addition of corn to this study will provide new data on corn in established long-term tillage systems.

Paul Jasa
Extension Engineer

Market Journal

Guests on this week's *Market Journal* will address a variety of topics, including crab grass as an alternative forage, the Central American Free Trade Agreement (CAFTA) and broadleaf dicamba-tolerant crops. The show is broadcast on ETV at 6:30 a.m. Saturdays and on NET2 at 9 a.m. on Sundays. See *marketjournal.unl.edu*

Soybean research shows how

Narrow rows reduce velvetleaf competitiveness

Velvetleaf, also known as buttonweed, is an important annual weed in row crops throughout the Midwest. Its fast growth rate allows it to compete with crops for growth limiting resources such as light, nutrients and water. Velvetleaf competitiveness, however, can be reduced by modifying cultural practices such as planting the crop in narrow rows.

Using a narrow row spacing allows the canopy to close earlier than with wide rows, increasing the shade effect for the weed. Other factors, such as the time of velvetleaf emergence relative to crop emergence, also can influence the outcome of crop and weed competition. It's logical to expect that later emerging weeds will be less competitive than weeds emerging with the crop. This knowledge of weed relative emergence can be used when making management decisions.

Nebraska research

We conducted field studies in eastern Nebraska at two locations in 2002 and 2003 to determine the influence of soybean row spacing and relative time of weed emergence on velvetleaf and soybean growth and competition. This study is also a master's project for Shawn Hock. Soybean was planted in 7.5- and 30-inch rows. Velvetleaf was hand planted at soybean planting (VP), emergence (VE), and 1st trifoliate (V1) stage. Observations were made throughout the growing season to determine the effects of row spacing and relative emergence on growth and development of both the crop and the weed.

Results from this study showed that velvetleaf produced much less dry matter and had about 60% less leaf area in narrow rows than in wide rows. By producing less dry matter and leaf area, the weed takes fewer resources from the crop. Velvetleaf emerging at the cotyledon stage (VC) of soybean produced 65% more dry matter than the velvetleaf that emerged at the V1 (1st trifoliate) stage of crop.

Soybean yields were higher in the narrow rows and when velvetleaf emerged later in the season. Soybean grown in 7.5-inch rows yielded 4 bushels more per acre than soybeans in 30-inch rows. Soybean yields were also reduced by 47%, 38%, and 15% when grown with velvetleaf emerging at the VC, V1, and V3 soybean stages, respectively.

Practical implication of this study is that planting narrow row soybeans will increase the crop competitiveness against weeds, including velvetleaf. Also, an early season field scouting of weed emergence patterns relative to the crop growth stage can help determine management strategies. For example, earlier emerging weeds will require earlier weed removal.

This study was partially funded by a USDA North Central Regional Weed Science grant.

Stevan Knezevic
Extension Weeds Specialist
Northeast REC, Concord

Sunflower herbicides *(Continued from page 74; table on page 77)*

matter soils and consists of leaf chlorosis, plant stunting, and occasionally plant death. Injured plants generally grow out of the injury within a few weeks and yield differences are minimal at harvest.

Postemergence herbicides

Imazamox (Beyond™) is labeled for use only in Clearfield sunflower hybrids. Clearfield sunflower hybrids contain a gene that confers tolerance, not resistance, to Beyond herbicide. Some slight crop injury (leaf yellowing and plant stunting) may be observed following Beyond herbicide application to Clearfield sunflower hybrids, especially where overapplication occurs such as in spray overlaps or field ends. Injured plants often recover quickly. Non-Clearfield hybrids would be killed if treated with Beyond herbicide.

Beyond herbicide should be applied early postemergence at a rate of 4 oz of product per acre to sunflower with two to eight leaves. Weeds should be actively growing at the time of application and broadleaf weeds should be less than 3 inches tall. Grass weeds should have no more than four to five leaves. A nonionic surfactant and nitrogen based fertilizer must be added to the spray solution for optimum weed control. It is recommended that a soil-applied grass herbicide, such as Prowl® or Dual Magnum®, be applied prior to application of Beyond. Beyond will control many broadleaf weeds that are troublesome in Nebraska sunflower fields including pigweed, kochia, Russian thistle, and nightshade. Beyond inhibits ALS-AHAS synthesis in weeds and will not effectively control ALS-resistant kochia or Russian thistle. There is also some concern about the risk of transferring the gene conferring tolerance to Beyond herbicide from commercial sunflower hybrids to wild sunflower. This technology should be avoided in fields with wild sunflower.

See page 77 for postemergence herbicides for sunflower. The other postemergence herbicides used in sunflower are sethoxydim (Poast) and clethodim (Select). Both of these herbicides control emerged grass weeds and volunteer small grains.

Drew Lyon, Extension Dryland Cropping Systems Specialist
Robert Wilson
Extension Weeds Specialist
Both at the Panhandle REC

Sunflower herbicides *(Continued from page 76)*

Pre-emergence

Herbicide	Commercial Product per Acre: Sandy Loam	Silt Loam	Silt-Clay Loam	Remarks and Approximate Cost/A Broadcast
Dual Magnum Preplant	1.0-1.33 pt	1.33 pt	1.67 pt	Provides excellent grass weed control, but should be combined with Spartan or followed with Beyond (Clearfield varieties only) for broadleaf weed control. Cost: $14.05-$23.45.
Eptam 7E	2.5 pt	2.5 pt	2.5 pt	Apply and incorporate just before planting. Cost: $15.40-$17.20.
+				
Treflan/Trifluralin	1.5 pt	1.5 pt	1.5 pt	
Prowl/Pendimax (3.3EC) PPI	1.2-2.4 pt	1.8-3.0 pt	2.4-3.6 pt	PPI up to 30 days prior to planting. Prowl PRE is most effective in controlling weeds when adequate rainfall or irrigation is received 7 days after application. Otherwise, a registered POST herbicide may be required. Cost: Prowl $3.50-$10.40; Prowl + glyphosate $10.45-$12.15.
Prowl (3.3 EC)/Prowl H_20/ Pendimax Pre	3.0 pt	3.6 pt	3.6 pt	
with or without				
Glyphosate*	16 oz	16 oz	16 oz	
Treflan/Trifluralin	1 pt	1.25-1.5 pt	1.5-2 pt	For best results immediately incorporate. Read label for carryover precautions. Cost: Treflan/Trifluralin $2.45-$7.25.
Spartan	2.0-2.67 oz	2.67-3 oz	2.67-3 oz	Apply PRE up to 30 days prior to planting. Risk of crop injury increases as soil pH increases and/or soil organic matter decreases. Cost: Spartan+ Prowl $14.55-$19.25; Spartan + Dual Magnum $19.95-$32.25.
+				
Prowl/Prowl H_20/ Pendimax	3.0 pt	3.6 pt	3.6 pt	
or				
Dual Magnum	1.0-1.33 pt	1.33 pt	1.67 pt	

Postemergence

Herbicide	Rate Per Acre	Application Time	Remarks and Approximate Cost/A Broadcast
Beyond (Clearfield varieties only)	4.0 oz	Sunflower 2-8 leaf, grasses 1-5 leaf, broadleaves 1-3"	For use with Clearfield varieties only. Add surfactant at 1-2 qt/100 gal and nitrogen based fertilizer at 2.5 gal/100 gal or AMS at 12-15 lb/100 gal. Cost: $17.85.
Poast	1-1.5 pt	Shattercane + corn 12-18"	Good coverage essential. Add 4-8 pt of UAN or 2.5 lbs AMS/ac to control crabgrass and all volunteer cereals. Cost: $9.10-$13.60.
+			
Dash HC	1 pt	Other grasses less than 5"	
or			
oil concentrate	2 pt		
Select	6-8 oz	Annual grass weeds 2-6"	Good coverage essential. Always use crop oil concentrate at 1 qt/A. May add AMS at 2.5 to 4 lb/A for difficult to control weeds. Cost: $9.75-$13.00.

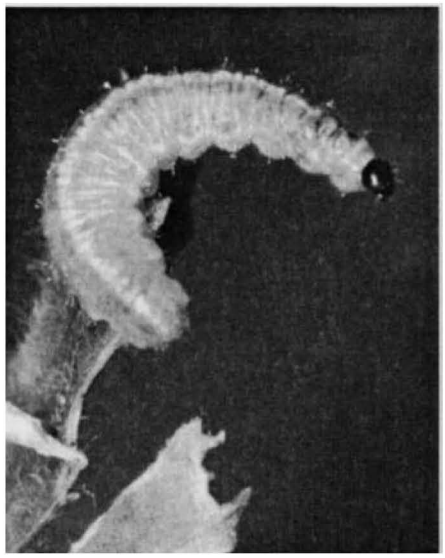
* Glyphosate is the active ingredient in many products. The rates provided on this page are based on a 4 lb ai or 3 lb ae formulation.

Alfalfa weevils visible in southern half; start scouting

Based on growing degree days, damage from alfalfa weevils should be visible in the southern half of Nebraska and the extreme western Panhandle (*Figure 1, page 79*). In the rest of the state small larvae should be present and some early light "pinhole" feeding may be seen on the leaf tips.

While alfalfa weevil damage has been spotty in much of Nebraska over the past few years, the potential for damage always exists. While things will be getting very busy in the next few weeks as row crops are planted, if you're growing high quality alfalfa hay take the time to monitor fields for weevils over the next month.

Clover leaf weevils (CLW) are occasionally a problem but are very vulnerable to fungus disease and so haven't been pests since the late 80s early 90s when spring rains were rare. Dry conditions over the past several years may have helped increase populations, especially in western Nebraska, although last week's rain may have knocked populations down. Clover leaf weevil larvae will be in the debris around the crowns during day. Scratching in the soil around the crowns and counting the number of



Alfalfa weevil

larvae found per crown will help give a better idea of clover leaf weevil infestation. Their brown heads will help distinguish them from the black-headed alfalfa weevil. The chart (*below*) compares characteristics of the alfalfa weevil and clover leaf weevil.

Both the alfalfa weevil and clover leaf weevil feed on first cutting alfalfa as larvae and regrowth of the first cutting as adults. While research in northeast Nebraska has shown that clover leaf weevil larva feeding does not cause yield reduction to first cutting alfalfa, alfalfa weevil feeding can cause severe losses to yield and quality of the first cutting.

It is essential that fields be monitored for alfalfa weevil feeding now. Damage consists of small holes and interveinal feeding on the newest leaflets near the stem tips. The larvae are small (1/16 to 3/8 inch in length) and pale yellowish green, becoming a darker green when larger. These legless worms have black heads and a white stripe the length of the back. The alfalfa weevil larvae spend nearly all their time on the plant. They curl into a C-shape when disturbed.

Once the alfalfa is about 4-6 inches tall, take a bucket, carefully cut some stems at ground level (30 to 50 per field, from various spots in the field) and shake the stems against the side of the bucket. Average the number of weevil larvae per stem. Use the economic threshold charts (*Figure 2, page 79*) to help determine whether to treat. Each chart has been developed for a different alfalfa value. To treat or re-sample depends on the average number of weevils per stem, the stem length, and the value of the alfalfa. When alfalfa reaches a certain height, it may be more profitable to cut the alfalfa early rather than treat it. Insecticides registered to control alfalfa weevil larvae include Ambush, Baythroid, Cythion, Furadan, Guthion, Imidan, Lannate, Lorsban, Mustang Max, Penncap M, Pounce, Proaxis, Sevin, and Warrior. Check the labels or visit the UNL Department of Entomology Web site at *http:/entomology. unl.edu/instabls/instabls.htm* to find the use rates.

Keith Jarvi, Extension IPM Assistant
Northeast REC, Norfolk

Comparing the alfalfa weevil & clover leaf weevil

Alfalfa weevil	Clover leaf weevil
Overwinter primarily as adults	Over winter primarily as larvae.
Adults brown with dark brown stripe halfway down back, 3/16 inch long.	Adults dark brown, pitted light brown underneath, over 1/4 inch long.
Larvae prefer to feed on tips.	Larvae feed anywhere on plant.
Larvae remain on plant most of the time. during daytime hours.	Many larvae in soil or debris
Larvae have black heads.	Larvae have brown heads.
Adults leave fields in June.	Adults may remain in fields.

Bean breeder *(Continued from page 72)*

in the six-row barley breeding project. While pursuing his master's degree at the University of Puerto Rico, he oversaw greenhouse and field operations of the entire dry bean breeding and genetics project for six months. Prior to that he was a research assistant in the breeding and genetics program at the International Center for Tropical Agriculture at Cali, Colombia. His work resulted in the release of six small and medium-seeded common dry bean cultivars possessing multiple-disease resistance in Argentina, Brazil, Bolivia and Mexico. He received a bachelor of science degree from Universidad Nacional de Colombia.

Urrea said his work in the Panhandle will include traditional breeding of dry bean varieties along with the use of genetic markers to select plants that are resistant to diseases that often reduce yields or quality, such as rust, white molds, and common bacteria blights. He said he expects much of his work will involve Great Northern beans, as well as pintos and other types of dry edible beans.

In addition to disease, Urrea said he hopes the Center's breeding program will address other grower issues, such as water efficiency and minimum tillage systems. He also hopes to develop varieties that have a more upright architecture, allowing direct harvesting by combines rather than needing to be cut and windrowed first.

Urrea's dry bean breeding program will build on the strong base created by Dr. Dermot Coyne, renowned UNL dry bean breeder. Coyne's germplasm collection is being catalogued and will be moved to Scottsbluff in June 2005.

Hibberd said Urrea's appointment is one of several developments intended to enhance the Panhandle REC's capabilities in the dry edible bean breeding area. Other plans include construction of a new greenhouse and a molecular laboratory, which will allow molecular marker work to enhance and speed up breeding.

Alfalfa weevils *(Continued from page 78)*

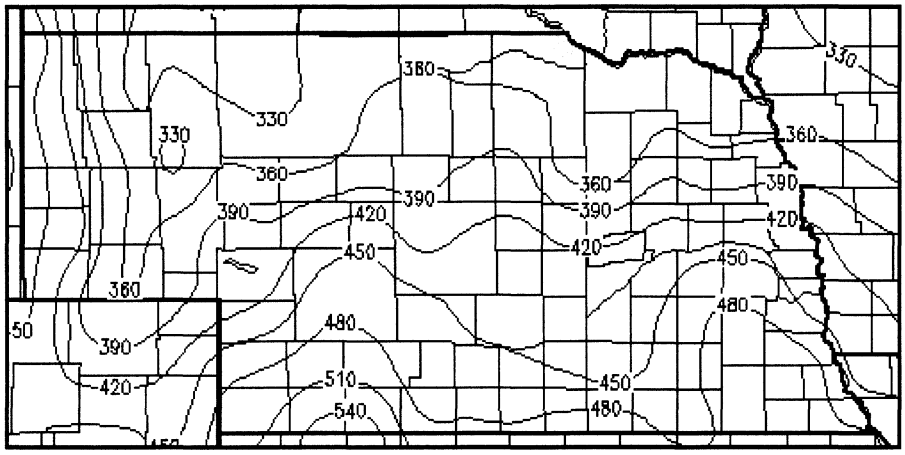


Figure 1. Accumulated growing degree days (GDD), using a base of 48 degrees, can be used to predict alfalfa weevil activity. Feeding begins at about 250 GDD. *(Map developed by Al Dutcher, State Meteorologist, High Plains Climate Center.)*

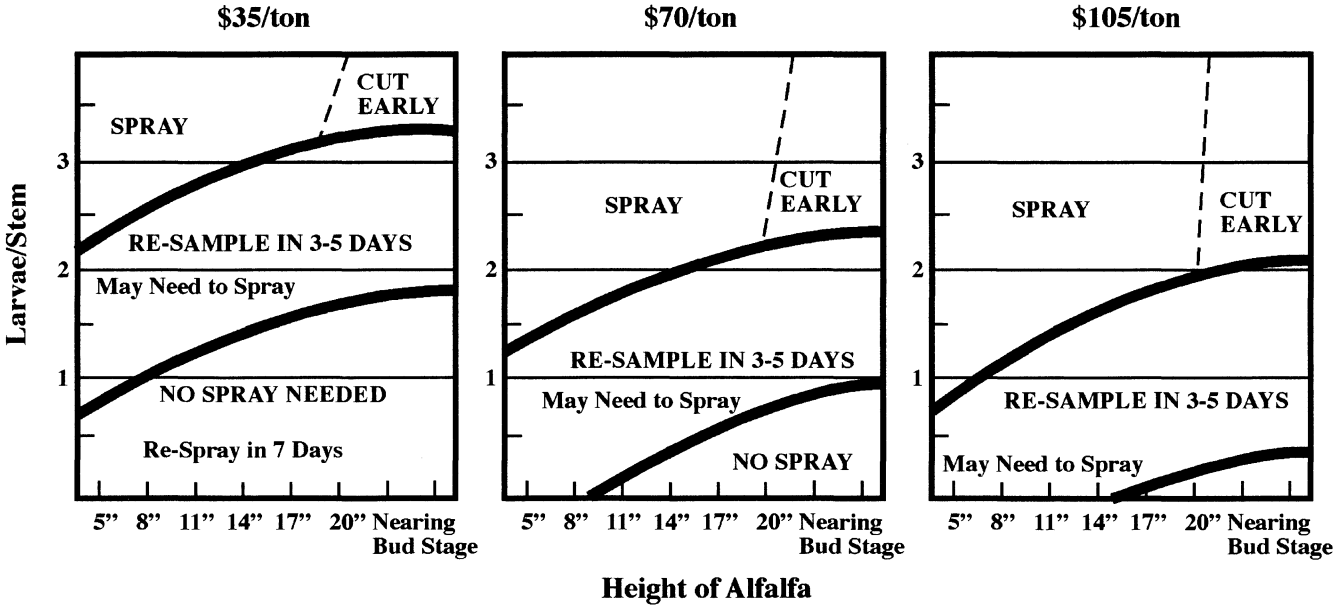


Figure 2. Treatment thresholds for the alfalfa weevil at three alfalfa price levels.

Rusts developing south of Nebraska

Rains may lead to increasing wheat diseases

Wheat growers in central and eastern Nebraska should monitor their fields for both leaf rust and stripe rust development.

Wheat disease activity increased the past couple of weeks with soil-borne mosaic, tan spot and powdery mildew being the most evident. Of these three diseases **soil-borne mosaic** is the most widespread and has contributed to the yellow patterns in wheat fields. In some fields stunting accompanies the yellow mosaic pattern on affected plants. Fields in low lying areas or low spots in fields usually show the most pronounced symptoms.

Frequent rains have been ideal for the development of tan spot in fields with wheat stubble from the previous wheat crop. **Tan spot** is recognized by the presence of dark brown spots with tan centers on leaves. So far the spotting is primarily on the lower leaves, but with continued wet weather. the infection will progress upward onto the upper leaves.

Overcast weather has promoted the development of **powdery mildew** on the lower half of wheat plants. If the current weather pattern continues, it to will move higher on the plants.

So far we have not had any wheat samples sent to the UNL Plant Disease Clinic with either leaf rust or stripe rust; however, both diseases are very active in Oklahoma and moderately active in southern Kansas. Oklahoma reports leaf rust severities of up to 60% on the upper leaves of Jagalene and Jagger. Jagalene is the most popular variety in Nebraska Although, previously reported as resistant, the development of moderately high severities with a susceptible reaction on Jagalene could signal that that resistance is breaking down due to new races of the leaf rust pathogen. Growers may want to monitor their Jagalene fields regularly for leaf rust development.

Stripe rust is widely spread across Oklahoma including heavy rusting in the Oklahoma Panhandle. It is present in both irrigated and dryland wheat. Its presence in western Oklahoma could signal potential stripe rust problems for southwest Nebraska and the Panhandle. Continued dry weather in these areas will restrict stripe rust development on dryland wheat. Wheat growers in the rest of Nebraska should monitor their fields for both leaf rust and stripe rust development.

John Watkins
Extension Plant Pathologist

Conservation Security Program sign up until May 27

Parts of 15 counties in southeast Nebraska and two counties in western Nebraska are eligible for the 2005 Conservation Security Program sign up. This voluntary program financially rewards farmers who meet high standards of conservation and environmental management in their farming operations.

Cropland, pasture and rangeland are eligible. More than 1600 people have already attended meetings in southeast Nebraska to learn about the program, payment levels and eligibility requirements.

Two final CSP public information meetings will be held next week at 7 p.m. The first is Monday, May 2, at the City Auditorium, 699 Kansas St., David City, and the second is Tuesday, May 10, at the 4-H Building, York County Fairgrounds, York.

This may be the one chance in eight years for producers in the eligible watersheds to apply for the program. Enrollment is limited to producers who have most of their farming operation in one of the eligible watersheds. It is expected that the program will be offered in other Nebraska watersheds later.

Farmers may enroll their entire ag operation, if it qualifies, or as little as one qualifying field or pasture. Once a producer has a contract, they may bring their other land into the contract as that land meets minimum qualifications.

Enrollment requires completion of a self-assessment workbook, designed to help producers determine which fields qualify for the program. University of Nebraska Cooperative Extension is conducting workshops to help farmers complete the workbook. Additional workshops are scheduled for Seward, David City and Clay Center from May 3 to May 9.

For more information on this program and upcoming meetings , check out the Cooperative Extension Web site *http://cspinfo.unl.edu/* or the NRCS Web site at *http://www.ne.nrcs.usda.gov/*

Thomas Franti, Extension Surface Water Management Specialist