

PLANT & PEST ADVISORY

FIELD CROPS/LIVESTOCK EDITION \$1.50

MAY 25, 2000

Check Alfalfa for Winter Injury

Phillip Tocco, Salem County Program Associate in Field Crops ICM



What with all the strange weather we had this winter, it is entirely possible that alfalfa fields could have been injured by the changes in heat and cold. For the most part, there were a lot of cool downs followed by warm ups. All the rain going into the cooler weather didn't help much either. To make matters worse, snow cover was spotty at best. This is why it's always a good idea to do a stand count just after your first cutting of alfalfa to see where things are at.

How to perform a stand count

The only special equipment you'll need to perform a stand count is a wooden frame that's 1 foot square along the inside edge. It's basically four pieces of wood nailed together. You'll want to take the stand count about 5 days after the first cutting, just as the new shoots are beginning to push on the alfalfa crowns. At five separate spots in each field, take the wooden frame and throw it like a frisbee until it lands at a spot in the field. Count the number of living crowns that are within the square at each of the five points and write down the numbers. Add the numbers together and divide by five. If the field average is four crowns per square foot or less, you have a thin stand. If you have 5 or more crowns per square foot, you should be okay this year.

What to do about a thin stand

If you find your stands are a little thin, there are a couple things you can do to salvage your forage supply. First, double cropping corn or a summer grain into alfalfa is a good option. This is a good thing to do for a number of reasons. To begin with, 30-40% of the yearly yield of alfalfa comes from the first cutting. By double cropping after the first cutting, you get the lion's share of the alfalfa yield for the year, plus the space to plant another crop. Alfalfa provides the second crop with nitrogen that you don't have to buy or apply. It also breaks down over time, so it's likely to stay put. The other bonus with double cropping into alfalfa is the natural weed control the dead alfalfa provides to the growing crop. The dead alfalfa smothers any weeds in the area between the crop rows.

Another option to keep thinning fields going is renovation, or overseeding an alfalfa stand with another type of clover. You could drill or broadcast a clover, like ladino or birdsfoot trefoil, right into

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Grass Hay Production – Production Costs

Jeremy W. Singer, Ph.D., Field and Forage Crops

Many hay growers utilize cool-season grasses in lieu of alfalfa on moderately-to-well drained soils or in fields with variable drainage where alfalfa typically does not persist. Growing grass mixes or monocultures increases weed control options and facilitates management decisions. These grasses will produce high quality forage and yields if managed properly. Hay producers in New Jersey should manage their grass hay fields to balance yield and quality. A grass hay research experiment was initiated at the Snyder Research and Extension Farm in the fall of 1998 near Pittstown, NJ. Orchardgrass and timothy (10 lb seed/acre), and smooth brome grass (12 lb seed/acre) were seeded at the recommended seeding rates in mid-September.

Orchardgrass was mowed at the boot to early-head growth stage on May 11th, 1999 and baled on May 15th after 2 teddings and one raking to ensure the moisture content had dropped below 20%. Crude protein averaged 23%, acid detergent fiber, a measure of forage digestibility, averaged 28%, neutral detergent fiber (NDF), a measure of animal intake, averaged 56%. Smooth brome grass was mowed on May 26th, 1999 at the boot to early-head growth stage and baled on June 1st after one tedding and one raking. Crude protein averaged 18%, ADF averaged 32%, and NDF averaged 59%. Timothy was mowed on June 7th and baled on June 9th after tedding and raking once each. Crude protein averaged 15%, ADF averaged 35%, and NDF averaged 65%.

Hay from all three species would be considered high quality for the horse market and command a premium price. However, the cost of production for first cut differs by species. Table 1 lists production costs by procedure or input to provide a clearer picture of how costs are incurred in hay production. All machinery costs are from the 1999 Pennsylvania

Agricultural Statistics Service annual report and include labor, fuel, repair and maintenance. All costs are presented on a per acre basis. Ammonium nitrate fertilizer was applied at 100 lb nitrogen per acre in early April at green-up. Receipts were calculated assuming the hay could be sold for \$140/ton.

Table 1 is also somewhat misleading because it only represents first cut. Orchardgrass provided the greatest seasonal yield and the greatest return per acre because we were able to harvest it three times. Timothy went dormant after the first cut because of severe drought. Smooth brome grass was also harvested three times, but second cut produced very low yields and it finished last in terms of net return per acre.

Another factor to consider when evaluating Table 1 is that it does not include interest on operating capital, land charges, or establishment costs. It is merely presented to help you understand how costs of production vary. Second cut orchardgrass did not require tedding, only mowing and raking because weather conditions were more favorable in late-June for drying. Remember that each trip across the field costs money. Measuring forage moisture content using the microwave method or some other method could save an unnecessary trip across the field. This is especially critical as diesel fuel prices remain high. A detailed economic analysis of this experiment will be conducted after we complete the 2000 growing season. In the meantime, every decision you make when producing your hay crop should be based on sound agronomic and economic information. □

THIN STAND FROM PAGE 1

the thin stand. Overseeding with more alfalfa is *not* recommended because, as alfalfa grows, it produces a chemical that is toxic to seedling alfalfa plants.

Overseeding with another clover is a temporary solution. The process will extend the productive life of the field until the end of the growing season. After that, you'll need to plan to do something new with the field next year. □

	ORCHARDGRASS	SMOOTH BROMEGRASS	TIMOTHY
Fertilizer	\$32.00	\$32.00	\$32.00
Bulk Spreading	\$6.00	\$6.00	\$6.00
Mowing	\$10.90	\$10.90	\$10.90
Tedding	\$11.80	\$5.90	\$5.90
Raking	\$5.90	\$5.90	\$5.90
Baling	\$0.40/bale x 42 = \$17.00	\$0.40/bale x 55 = \$22.00	\$0.40/bale x 91 = \$36.00
Total Cost	\$84.00	\$83.00	\$97.00
Receipts	\$147	\$193.00	\$319.00
Net Return	\$63.00	\$110.00	\$222.00

Soybean and Corn Planting and Wet, Cool Soil Conditions

Daniel Kluchinski, Mercer County Agricultural Agent

Significant rainfall, pesky showers, and cool weather over the past week have delayed some corn emergence, and corn and soybean planting. The question is starting to arise . . . how will this current weather affect yields? This is too difficult to predict, but there are several factors and well known facts that can help us to assess the situation and determine a plan of action.

First, Mother Nature is the culprit in the weather department. There's not much we can do, but we are well aware of the effects. For corn already planted and yet to germinate, the cool soil temperatures may increase disease occurrence and reductions in plant populations. **Black cutworm** is also being found in some locations, and can reduce plant populations after seedling emergence. Therefore, monitor earlier planted corn to see if any substantial damage has occurred. If significant, you may have to apply a insecticide for control. For thresholds and insecticide recommendations, contact your local field crop agent.

If you do not yet have all your corn planted, there will be an urgency to plant corn when conditions are favorable. This is not only due to realities of time management, but also because we are beyond the optimum planting period for corn. Delays in corn planting can cause yield loss. Research in the Midwest showed that a delay in corn planting from early May to late May or early June resulted in as much as 20 percent yield loss. Therefore the necessity to get corn planted first is understandable.

Soybeans should not be planted into cold, wet soil. Under wet conditions, seedling diseases such as **Fusarium**, **Rhizoctonia** or **Phytophthora** can occur. Consider delaying planting as soybeans planted under drier and warmer conditions will germinate faster, have fewer disease problems, and will provide a better stand. In addition, optimize growing conditions by providing proper pH, fertility, and weed control.

Full-season soybeans should be planted between mid-May through June. If planted during this period, soybeans have the potential to reach maximum yield. However, the yield penalty for late planting increases as the length of the day increases, as soybeans are a photosensitive (daylight sensitive for flowering) plant. If planted by early June, little yield loss occurs. After this date, 1 to 3 bushels of yield loss can occur for each week of planting delay. Planting date can also affect plant height, lodging potential, pod height and branching. If planting very late, an early soybean cultivar should not be selected, but rather a medium to full season cultivar. This would allow adequate vegetative growth to occur before the critical day length conditions (actually longer nights) trigger the beginning of flowering. In addition, a longer season variety will produce higher pods, easing harvest.

For information on planting dates, replanting decisions or other management factors, contact your county agricultural agent. □

NJ Grain and Forage Journal Available on the Internet

Daniel Kluchinski, Mercer County Agricultural Agent

The New Jersey Grain and Forage Journal is an annual journal highlighting research and extension projects in field and forage crops. The sixth edition, available in limited printed quantities, was distributed to local Extension offices in January. The 1999 edition is now available on the Rutgers Cooperative Extension web site at <http://www.rce.rutgers.edu/pubs/ag/index.html>.

In 1999, articles from New Jersey, Delaware and Pennsylvania researchers and Extension personnel are included. Articles include:

- evaluation of spring malting barley
- crop safety of foliar applied potassium fertilizers on soybean
- corn yield response to plant populations
- soybean variety yield trials
- soil pH and liming material management
- soil variability study using GPS
- fall and spring baiting of wireworms in corn
- Bt corn hybrid performance evaluations

The publication is supported financially by the New Jersey Soybean Board, Grain and Forage Producers' Association of New Jersey, and Rutgers Cooperative Extension. The Soybean Board allocates soybean check-off funds for research and promotional activities that benefit the soybean industry. The Grain and Forage Producers' Association promotes research, marketing, legislation and education related to the grain and forage industry. Future editions will be posted on the Rutgers Cooperative Extension web site. □

Crop Field Day

Corn and Soybeans
Thursday, June 15th

9:30 a.m. to 11:30 a.m.

Sam Santini Farm
(Cline Farm) Stewartsville, NJ

2:00 p.m. to 4:00 p.m.

Neil Murphy Farm
Kresgeville, PA

Sponsored by Cooperative Extension of Rutgers
and Penn State Universities

- Learn to evaluate corn and soybean stands.
- Practice identifying weeds, insects and diseases.
- Learn how to improve management practices to increase corn and soybean yields.
- Learn how to "fine tune" the timing of Round-Up applications.
- Learn how to improve post-emergent weed control.
- Learn to identify insect damage and determine thresholds for rescue treatments.

Special Feature: Diagnostic Clinic

Bring your problem weeds, insects and disease samples with you and receive personal assistance in problem identification and management

Agricultural specialists and agents from Rutgers and Penn State Universities will present information and hands-on evaluations of corn and soybean fields to improve yields, control weeds, analyze soil fertility, and increase profitability.

Speakers include:

John Yocum, Penn State University, Agronomy Specialist, Landisville Research Farm

Dennis Calvin, Penn State University Entomology Specialist

To register, please call one of the following offices by June 13th. This will help us to prepare the necessary materials.

Everett A. Chamberlain, Rutgers Cooperative Extension of Warren County

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Experiences With Roundup

Ready Soybean Weed Control

Mark VanGessel, Ph.D., Weed Science, University of Delaware

The Delaware Soybean Board has funded a series of studies for weed control in Roundup® Ready soybeans. A summary of the results follows.

For full-season soybean with annual weeds, start with a clean field using either tillage or a good burndown program. Although we have tried to time our Roundup Ultra sprays for both burndown and in-crop weed control for no-till soybeans, we have not been successful with this approach. Time your postemergence spray during the period 3 to 4 weeks after planting with conventional tillage soybeans or 3 to 5 weeks after planting with no-till soybeans. The moisture conservation with no-till allows for the wider window of application. If you foresee problems with spraying during this window, consider using a reduced rate of a preemergence herbicide or spraying prior to 3 weeks after planting and including a residual herbicide.

Spraying earlier than 3 weeks after planting often requires either a second Roundup Ultra application or tank-mixing a residual herbicide to reduce the need for a second application. Three tank mix options we have tried include FirstRate, Classic, or Pursuit. However, our research has not shown a benefit to tankmixing another herbicide with Roundup Ultra if sprayed 3 to 4 weeks (after planting) for conventional tillage or 3 to 5 weeks for no-till.

Morningglory control with Roundup Ultra will be reduced if the morningglories have begun to vine. However, tankmixing with other herbicides has not improved control. For maximum morningglory control, either spray Roundup Ultra at 3 weeks after planting (when the weeds are the smallest) or apply two applications of Roundup Ultra.

For perennial weeds (horsenettle, Canada thistle, hemp dogbane, common milkweed, johnsongrass, and bermudagrass), our research has shown applying Roundup Ultra late as possible (4 to 6 weeks after planting) has given better control than early applications. There has been no advantage to two applications. It is difficult to achieve 100 percent control with most perennial weeds, regardless of the weed control program used. We often achieve 80 to 85 percent control with the program described here.

Finally, we have not seen differences in weed control or yield when using Touchdown in place of Roundup Ultra, and there are generic formulations for Roundup available. □

Height Restrictions and Rainfastness for Postemergence Corn Herbicides

Mark VanGessel, Ph.D., Weed Science, University of Delaware

Rainfastness is number of hours needed between time of application and rainfall or irrigation to ensure sufficient absorption in the plant.

Broadcast applications refer to an over the top application and directed refers to use of special spray equipment to direct the spray and avoiding the spray coming in contact with the whorl of the corn. When corn height or collar number are reached, base decision on whichever feature is first attained.

Herbicides	Rainfast interval (hr)	Maximum corn size	Herbicides	Rainfast interval (hr)	Maximum corn size
Accent	4	broadcast: 6 collars or 24" directed: 10 collars or 36"	Roundup Ultra	1-6	up to 30" or 8 collars max
Aim	1	broadcast: up to 8 collars directed: when necessary	Stinger	6-8	24" tall
Atrazine	2	12" tall	Tough	1-2	until 68 days pre-harvest
Banvel	4	more than ½ pt/A: broadcast: 5 lvs or 8" directed: 36" tall	Premixes		
Clarity		½ pt/A or less: 36" tall	Basis	4	2 collars or 6" tall
Basagran	8	No restrictions listed	Basis Gold	4	5 collars or 12" tall
Beacon	4	broadcast: min- 4" tall max- 20" tall or 6 collar directed: pre-tassel	Celebrity Plus	4	broadcast: 4 to 24" tall
Bladex 90 DF	4	prior to when 5th leaf is visible	Distinct	4	6 oz rate: 4" to 10" tall 4 oz rate: up to 24" tall
Buctril	1	pre-tassel	Exceed	4	broadcast: min- 4" tall max- 20" tall or 6 collar directed: 20" to 30" tall
2,4-D Amine	6-8	broadcast: 8" tall directed: pre-tassel	Field Master	2	Do not apply to emerged corn
2,4-D Ester	2-3	broadcast: 8" tall directed: pre-tassel	Hornet	6	broadcast: 24" tall directed: until 85 days pre-harvest
Evik	-	directed only: 12" tall do not apply 3 weeks before tasseling	Laddok	8	12" tall
Liberty	4	broadcast: 24" tall or 7 collars max directed: 20" to 36" tall	Liberty ATZ	4	12" tall
Lorox	-	directed only	Lightning	1	broadcast: 12" tall directed: 20" tall
Permit	4	broadcast: 48" tall directed: when necessary	Marksman	4	broadcast: 5-lf stage or 8" tall
Poast	1	broadcast: emergence to start of pollen shed	Northstar	4	broadcast: min- 4" tall max- 20" tall or 6 collar directed: 20" to 30" tall
Poast Plus		directed: when necessary (depending on corn canopy and weed ht.)	Scorpion III	6	broadcast: 8" tall directed: pre-tassel
Resource	1	broadcast: 2-lf to 10-lf stage (collars must be visible) directed: when necessary; when corn leaves interfere w/spray	Shotgun	24	broadcast: 8" tall directed: 12" tall or if rate >2 pts
			Spirit	4	broadcast: 20" tall or 6 collars (minimum ht. 4" tall) directed: 20" to 24" tall (before tassel emerg.)

Weed Notes

Mark VanGessel, Ph.D., Weed Science, U of D

Yellow nutsedge control

This past spring presented good conditions for yellow nutsedge growth. In corn, the best post-emergence herbicide is Permit. We have had good control with the 2/3 ounce rate with nutsedge less than 6 inches tall. However, the label only lists suppression at this rate. The 1 to 1-1/3 ounce rate is listed on the label for control of nutsedge up to 12 inches tall. Unlike most ALS-inhibiting herbicides, there are not precautions with soil-insecticides on the Permit label. Use a non-ionic surfactant or crop oil with Permit. Small grains can be planted in the fall after a Permit application.

For soybeans, Dual incorporated prior to planting is the best soil-applied treatment and Frontier will provide some suppression. Postemergence in Roundup Ready soybeans, Roundup or Touchdown alone was as good as tank-mixtures. In conventional soybeans, Basagran will provide some control by burning back the top growth, and higher rates of Classic will provide some suppression.

Supplemental label for Pinnacle in field corn

Pinnacle label for field corn has a slight modification. It can now be used on field corn up to 4 collars or 12 inches tall, whichever is reached first. This treatment will control a limited number of species (velvetleaf 2-6", pigweed 2-12", lambsquarters 2-4", and smartweeds 2-6"). This can not be used with corn previously treated with Counter 15G, and the label states injury may occur when corn was treated with Counter 20 CR and soil organic matter is less than 4%. Injury may also occur if corn was treated with Dyfonate, Lorsban or other organo-phosphate insecticides. No restriction if an "IR" hybrid was used. This is an option for triazine-resistant pigweed and lambsquarters.

Be Mindful of Surfactants

The rainfall and cloudy skies this past week has resulted in less leaf waxes than usual. Follow this with projected warm weather and growing conditions should be optimal. But this also means that using a crop oil concentrate and/or liquid nitrogen can increase injury for postemergence sprays. To minimize crop injury, consider using only a non-ionic surfactant for postemergence sprays under these optimal growing conditions. □

Weekly Weather Summary

Keith Arnesen, Ph.D., Agricultural Meteorologist

Temperatures averaged much below normal. Extremes were 84 at Pemberton on the 19th and 31 degrees at Charlotteburg on the 16th. Weekly rainfall averaged 2.10 inches north, 1.67 inches central, and 0.60 inches south. The heaviest 24 hour total was 1.45 inches at Canoe Brook on the 18th to the 19th. Estimated soil moisture, in percent of field capacity, this past week averaged 96 percent north, 91 percent central and 57 percent south. Four inch soil temperatures averaged 58 degrees north, 61 degrees central and 61 degrees south.

Weather Summary for the Week Ending 8 am Monday 5/22/00

WEATHER STATIONS	RAINFALL					TEMPERATURE		GDD BASE50		MON	
	WEEK	TOTAL	DEP	MX	MN	AVG	DEP	TOT	DEP	%FC	
BELVIDERE BRIDGE	2.15	12.37	2.03	79	38	55.	-6	331	112	99	
CANOE BROOK	2.50	8.81	-2.61	83	39	57.	-4	391	196	99	
CHARLOTTEBURG	1.52	11.22	-.02	78	31	52.	-6	237	115	99	
FLEMINGTON	1.97	10.63	-.20	82	38	58.	-3	417	209	99	
LONG VALLEY	2.37	10.70	-.95	76	38	54.	-5	287	136	99	
FREEHOLD	1.25	8.13	-2.66	82	43	60.	-3	443	183	99	
LONG BRANCH	1.72	9.92	-1.22	77	44	56.	-6	302	80	97	
NEW BRUNSWICK	1.67	10.27	-.31	82	40	58.	-5	415	128	99	
PEMBERTON	1.86	10.11	-.18	84	44	62.	-1	664	380	97	
TOMS RIVER	1.38	8.67	-2.12	78	41	57.	-5	407	163	100	
TRENTON	2.12	9.40	-.37	81	42	59.	-5	473	152	98	
CAPE MAY COURT HOUSE	.61	10.36	.89	74	44	59.	-4	421	137	49	
DOWNSTOWN	.49	10.57	.84	83	41	59.	-5	482	149	73	
GLASSBORO	1.12	11.42	1.09	84	48	60.	-4	533	214	97	
HAMMONTON	.68	8.35	-1.70	82	41	58.	-6	449	138	71	
POMONA	.34	7.90	-1.51	76	41	58.	-4	409	148	48	
SEABROOK	.56	11.99	3.12	83	46	61.	-3	530	192	71	
ATLANTIC CITY MARINA	.42	9.06	.16	69	50	59.	-2	421	172	50	
WOODSTOWN	.63	13.22	3.14	84	39	60	NA	541	NA	NA	
WES KLINE — GDD BASE 40 PINEY HOLLOW	Last Week 225 (Ending 5/15/00) This Week 133 (Ending 5/22/00)										

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