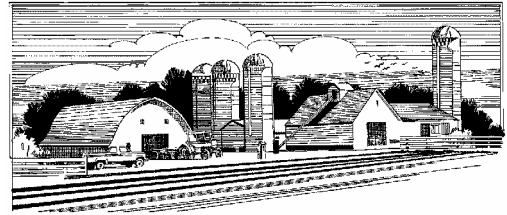


Ag Links

Polk County UW-Extension Office 715-485-8600
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August 2004

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This information is provided to you through cooperative efforts of the U.S. Department of Agriculture, UW-Extension and Polk County. For more information, contact the Polk County UW-Extension Office at 485-8600.

Ryan Tichich
Agriculture/Horticulture Agent

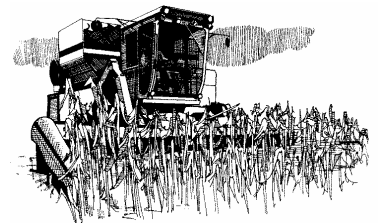
Projected 2004 Corn Harvest Dates for Silage and Grain

Northwest Wisconsin continues to be behind on GDU accumulation. May 1st to July 31st has resulted in 1098 GDU for Polk County. This is well behind the GDD levels from the last two years, which were both around 1350 GDU. This situation is not specific to Northwest Wisconsin – the Madison area has only accumulated 1160 GDU and the Marshfield area has accumulated 1089 GDU over the same time period.

We are noticing that some hybrids are silking prior to the tassels emerging. Normally silks will emerge 2-3 days after tassels have begun to shed pollen, but during cool growing seasons the reverse can happen. The plants are telling us that it is cool out there.

At the Marshfield Ag Research Station, GDU accumulation is the second lowest on record for the period May 1 to July 27 with 1089 GDUs accumulated so far (average = 1302 GDUs). The coolest year on record at Marshfield for this period is 1967.

The date that silking (R1) occurs on the corn plant is the reason why GDU accumulation is important. Temperature drives the enzymatic reactions that occur within corn cells which influence the rate of growth and development. Temperature is most important during the vegetative phases of development up to the silking stage. Once silking occurs, temperature plays less of a role in development since the leaves and stalk are present and fully grown. Kernel development is more influenced by the number of days that have occurred since silking, although temperature will influence the rate of kernel growth.



Typically, it takes 35-42 days after silking to reach the dent (R5) stage, and 55-65 days to reach the black layer (R6) stage (Ritchie et al., 1993). The average freeze (<32F) for Polk County is between September 25 and September 29. For a full-season hybrid (90-95 day RM) to achieve silking and maturity in Polk County, it requires 1150 and 2250 GDUs.

If average temperatures occur from this day (July 28) forward, we will not achieve the required GDUs for maturity of full-season hybrids at these locations. Remember though that temperature has less of an effect on development and the number days after silking is what is important for projecting harvest dates.

Based on GDU accumulation for 2004, full season hybrids planted in early May will reach maturity at the end of September. The same

hybrid planted in mid May will likely reach the 1/2 milk stage just ahead of the frost around September 20th and full season hybrids planted in early June will likely reach the 1/2 milk stage at the end of September.

Table 1 lists projected dates for silage (R5.5) harvest and grain maturity (R6) of full-season corn hybrids at Arlington and Marshfield. These predictions assume that temperatures will be average from July 28 on, which is highly unlikely, but it does give us a feel for the stage of development that corn will be at when frost occurs for various planting dates and the timing for harvest of silage, high moisture and dry grain during 2004.

Adapted from: Joe Lauer, Corn Agronomist, UW-Madison, Wisconsin Crop Manager Article

Literature cited: Ritchie, S.W., J.J. Hanway, and G.O. Benson. 1993. How a corn plant develops, Iowa State University CES Special Report No. 48. 21 pp.

Table 1. Projected dates when corn growth stages are achieved for various 2004 planting dates. Predictions assume that temperatures are average from July 28 on.								
		Days after	Planting date					
Growth stage	GDUs	silking	April 15	May 1	May 15	June 1	June 15	July 1
Arlington (Full-season hybrid = 105 to 110 d RM,)								
R1 (silking)	1250	---	July 25	July 31	Aug. 6	Aug. 14	Aug. 26	Sep. 7
R5 (dent)	2150	38	Sep. 1	Sep. 7	Sep. 13	Sep. 21	Oct. 3	Frost
R5.5 (1/2 milk)	2275	49	Sep. 12	Sep. 18	Sep. 24	Oct. 2	Frost	Frost
R6 (black layer)	2400	60	Sep. 23	Sep. 29	Oct. 5	Frost	Frost	Frost
Marshfield (Full-season hybrid = 90 to 95 d RM,)								
R1 (silking)	1150	---	July 26	July 30	Aug. 4	Aug. 10	Aug. 21	Sep. 2
R5 (dent)	2000	38	Sep. 1	Sep. 6	Sep. 11	Sep. 17	Frost	Frost
R5.5 (1/2 milk)	2150	49	Sep. 13	Sep. 17	Sep. 22	Sep. 28	Frost	Frost
R6 (black layer)	2250	60	Sep. 24	Sep. 28	Frost	Frost	Frost	Frost
GDUs = modified Growing degree units (base= 50 F, maximum = 86 F)								
Average frost date (<32) at Arlington = Oct. 7 and Marshfield = Sep. 27.								

Does It Pay to Cut Corn Seed Costs?

Since the arrival of transgenic hybrid corn, seed costs have risen dramatically. Between 1987 and 2003, average corn seed costs in the UW Agronomy PEPS program have risen from \$19.60 to \$40.62 per acre. Many farmers are considering ways to reduce seed costs. This can be done either 1) by purchasing lower cost seed, 2) by reducing planting rates, or 3) by purchasing hybrids without transgenic traits. I have also seen low cost, "brown-bag" hybrid corn seed at retail chain stores, off-brands offered via the internet and secondary brands offered from established seed companies.

Are these appropriate methods for reducing seed cost? How much of a yield increase is needed to pay for more expensive hybrids? This article examines some of the economics associated with the above methods for reducing seed cost.

Purchasing lower cost seed

Reducing seed costs might be accomplished by purchasing less expensive three-way or four-way (double) crosses. Most seed sold today is produced from single crosses which make up nearly all of the corn seed market. But, farmers should realize that the yield potential of hybrids produced with three-way or four-way (double) cross methods may be below expectations. Often double-cross hybrids yield only half the yield potential of single-cross hybrids. Some well-

tested and top-performing three-way crosses may have a place, but the reduced yield of four-way crosses will cost the farmer more than the seed cost savings.

Table 1 can be used to evaluate the relationship between seed cost and grain yield needed to pay for seed at various corn prices. As seed cost increases, more harvested grain is needed to pay for the seed at a similar corn price. Conversely, as corn price increases, less harvested grain is needed to pay for the seed at a similar seed cost per bag.

For the example in Table 1, the desired plant density at harvest was 30 000 plants/A, so seed was planted at 33 300 seeds/A with the expectation that 10% of the seed would not survive. When the corn price is \$2.50 per bushel, hybrid seed corn at \$80 per bag (80 000 kernels) requires 13.3 bu/A to pay for the seed. At the same corn price, costs for a more expensive hybrid at \$120 per 80 000 kernel bag would need 20.0 bu/A to pay for the seed. The difference between the hybrids in yield needed to pay for seed costs (20.0 – 13.3) is 6.7 bu/A. So the more expensive hybrid would need to yield 6.7 bu/A more than the less expensive hybrid to "pay its way." For the corn prices listed in Table 1, the economic swing between the least and most expensive bag of seed is \$33/A

Table 1. Grain yield (bu/A) needed to pay for seed at various seed and corn prices

Corn price	Seed Cost per bag (80 000 kernels)				
	\$60.00	\$80.00	\$100.00	\$120.00	\$140.00
	Seed Cost per Acre at 30 000 plants/A + 10% potential plant death				
	\$25.00	\$33.33	\$41.67	\$50.00	\$58.33
\$1.50	16.7	22.2	27.8	33.3	38.9
\$2.00	12.5	16.7	20.8	25.0	29.2
\$2.50	10.0	13.3	16.7	20.0	23.3
\$3.00	8.3	11.1	13.9	16.7	19.4
\$3.50	7.1	9.5	11.9	14.3	16.7

Reducing planting rate

A second way to reduce seed costs is by reducing planting rates. Important factors to consider are plant population, seed cost, expected corn price and expected yield. In the example shown in Table 2, a full optimum stand (30 000 plants/A) is compared to a 90% stand (27 000 plants/A) and assumes a 2% yield reduction due to lower plant population. Average production costs = \$256/A without seed costs (derived from PEPS).

As seed cost increases for a yield level, grower return is reduced and favors the full stand when

yields ranged from 120 to 200 bu/A (Table 2). As yield level increases, grower return increases and except for low yield levels (40-80 bu/A) usually favors the full stand. When yield level was 40 bu/A, the reduced stand always resulted in greatest grower return. When yield level was 80 bu/A, full stands were favored when corn seed prices were below \$100 per bag, while reduced stands were favored when corn seed prices were \$100 per bag or greater. The entire range in this example was (\$3.83) to \$7.50, an economic swing of \$11/A.

Table 2. Grower return above additional seed cost for 100% stand compared with 90% stand for various yield levels and seed corn prices (corn selling price = \$2.50/bu).

Yield	Seed Cost per bag (80 000 kernels)				
	\$60.00	\$80.00	\$100.00	\$120.00	\$140.00
	Seed Cost per Acre at 30 000 plants/A + 10% potential plant death				
	\$25.00	\$33.33	\$41.67	\$50.00	\$58.33
40	-\$0.50	-\$1.33	-\$2.17	-\$3.00	-\$3.83
80	\$1.50	\$0.67	-\$0.17	-\$1.00	-\$1.83
120	\$3.50	\$2.67	\$1.83	\$1.00	\$0.17
160	\$5.50	\$4.67	\$3.83	\$3.00	\$2.17
200	\$7.50	\$6.67	\$5.83	\$5.00	\$4.17

Transgenic hybrids

Finally, more corn hybrid products are available from seed companies today than ever before. Many of these hybrids have transgenic traits which increase seed costs. Savings to the farmer occur because pesticide application costs are either reduced to zero or some lower amount. Table 3 evaluates the relationship between seed cost and expected yield potential at various pesticide cost savings. For example, at a corn price of \$2.50 per bushel, hybrid seed corn at \$80 per bag (80 000 kernels) requires 13.3 bu/A to pay for the seed. At the same corn price, costs for a more expensive hybrid at \$120 per 80 000 kernel bag with \$10/A of pesticide cost savings

would need 16.0 bu/A to pay for the seed. The difference between the hybrids in yield needed to pay for seed costs (16.0– 13.3) is 2.7 bu/A. So the more expensive hybrid would need 2.7 bu/A more yield than the less expensive hybrid to “pay its way.” If the pesticide cost savings was \$20/A the difference between hybrids (12.0-13.3) is -1.3 bu/A indicating that the more expensive hybrid more than pays its way.

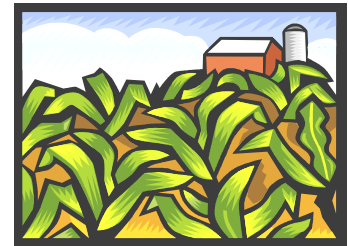


Table 3. Grain yield (bu/A) needed to pay for seed at various seed cost and pesticide savings (corn selling price = \$2.50/bu).

Pesticide cost savings	Seed Cost per bag (80 000 kernels)				
	\$60.00	\$80.00	\$100.00	\$120.00	\$140.00
	Seed Cost per Acre at 30 000 plants/A + 10% potential plant death				
	\$25.00	\$33.33	\$41.67	\$50.00	\$58.33
\$0.00	10.0	13.3	16.7	20.0	23.3
\$10.00	6.0	9.3	12.7	16.0	19.3
\$20.00	2.0	5.3	8.7	12.0	15.3
\$30.00	-2.0	1.3	4.7	8.0	11.3
\$40.00	-6.0	-2.7	0.7	4.0	7.3

Other considerations

It may be possible to make limited savings in seed costs by carefully purchasing hybrids. Some hybrids with similar performance may vary in price from company to company. Volume discounts or early payment may reduce seed costs. Small or “plateless” seed of high quality will perform equal to other slightly more expensive sizes or shapes.

In the final analysis, hybrid performance is much more important than seed cost when purchasing corn seed and should be the first priority for hybrid selection decisions. Top- and bottom-performing hybrids in UW yield trials often vary

by 30 to 90 bu/A (average = 78 bu/A) depending upon the trial. At a corn price of \$2.50 per bushel, this is an economic swing of \$75 to \$225 per acre (average = \$195/A). The substantial difference in value per acre between hybrids in yield potential makes the difference in seed cost per bag seem relatively insignificant.

For a spreadsheet to calculate these and other “what-if” seed cost scenarios see <http://corn.agronomy.wisc.edu/>.

Adapted from: Joe Lauer, Corn Agronomist, UW-Madison, Wisconsin Crop Manager Article

Polk-Burnett Farmers Union Day Camp

Rural and non-rural school-age youth are invited to attend the Polk-Burnett Farmers Union Free Day Camp which will be held August 20, from 9 a.m. – 2:30 p.m. at Unity School, in Balsam Lake. This is for children ages 6-16. Pre-registration is necessary.

Lunch, snacks, dairy products and prizes will be provided at no cost. Activities will include teamwork activities, fun songs and games, crafts, and a workshop on cooperation and issues

relating to rural life. There will also be a drawing for a chance to win a free camp session to attend WFV Kamp Kenwood in Chippewa Falls.

Please pre-register by August 15 by calling one of the following with child’s name, age and phone number: Kim at 268-4747, Christine at 268-9416, Ardyce at 327-4960, Bruce at 825-3596 or Mabel at 472-2891.



You Can't Afford to Lose Silage in Bunker Silos



Forage is too valuable to be lost because bunker silos or silage piles are sized incorrectly or inadequately managed, says University of WI-Extension Agricultural Engineer Brian Holmes.

He explains that each ten percent loss of dry matter for hay silage represents about \$1,940 a year for each 100 cows when fed a 50-50 ration of hay and corn silage. Dry matter loss occurs in silos because of inadequate feedout face removal rate, inadequate silage density, exposure to oxygen or rainwater, and juice seepage.

Holms says these losses can be avoided or minimized.

For example, adding a 100-foot long wall to create three bunker silos instead of two will add an initial cost of \$7,500 when the wall costs \$75 per foot. Using a 12 percent depreciation, interest, repairs, taxes, and insurance factor, the \$7,500 initial cost is converted to an annual cost of \$900 a year. The result is a net profit of \$1,040 for a 100-cow herd.

You can minimize seepage by harvesting at a moisture content of less than 70 percent and covering the forage to protect it from rain.

You can control density with the packing process, forage moisture content, packing tractor weight, delivery rate of forage from the field, and depth of forage. High rates of delivery by use of modern self-propelled, high-capacity forage harvesters can result in low-density silage, which allows easy oxygen penetration into the exposed surfaces.

Eight mil plastic held close to the silage surface by a weighting material limits oxygen and rainfall

exposure. Some producers report improved forage quality along bunker walls when they line the walls with plastic film and placing the wall lining plastic under the top cover plastic at the joint. The wall plastic excludes from the silage water running down the wall. The wall plastic also keeps oxygen from penetrating through wall cracks into the silage.

The rate of feedout (inches per day removed from the face) is influenced by how much feed is needed each day and the area of the feedout face. A common mistake is to design a horizontal silo so wide that the feedout rate is too low. Wide bunker silos are less expensive than narrow silos because narrow bunker silos require more length of bunker wall for a given volume stored. Producers can save silo wall cost by making bunker silos wide, but this can have a high annual cost due to higher dry matter loss as shown above.

More detailed recommendation on the use of bunker silos is available in a recently revised publication, *Managing and Designing Bunker and Trench Silos* (AED-43). You can get this publication from the website <http://mwpsHQ.org> or by calling 515-294-4337. Other storage information and spreadsheets are available from the University of Wisconsin-Extension Team Forage "Harvest and Storage" web page at <http://www.uwes.edu/ces/crops/uwforage.htm>.

Dairy Fun Fact!

To get the same amount of calcium provided by a quart of milk you would have to eat three and one-half pounds of peas, 27 oranges, 50 tomatoes or 50 slices of whole wheat bread.

Pinkeye in Cattle

Description

Pinkeye is a painful and damaging infectious disease in one or both eyes of cattle. If left untreated, pinkeye can lead to blindness in the infected eye(s). Pinkeye in cattle is also called Infectious Bovine Keratoconjunctivitis (IBK).

Clinical Signs

Excess watering and tears occur in the infected eye. Partial closure of the eyelid (squinting) due to the pain of the infection also occurs. The cornea (surface of the eyeball) develops a sore or ulcer in the middle of it, usually seen as a white spot 1/4 inch in diameter where it normally should be clear.

Causes

The most common cause (90%) of pinkeye in cattle is the bacteria, *Moraxella bovis*. There are different strains of this bacteria that produce exotoxins which destroy the cornea of the eye. Another bacteria, *Neisseria* spp., may also cause pinkeye. A common virus of cattle, Infectious Bovine Rhinotracheitis (IBR), can also cause pinkeye lesions.

Cattle Affected

Pinkeye affects all ages of cattle, but younger cattle (< 2 years) are more susceptible. Pinkeye is most common in cattle on pasture, during the summer months, especially during the fly season. Most all summer pinkeye in cattle on pasture is caused by the *Moraxella bovis* bacteria.

Contributing Factors

Flies, especially face flies which spread the bacteria; sunlight (ultraviolet light); and eye irritants such as weeds, thistles, etc. are factors that contribute to pinkeye in cattle.



Treatment

Injectable antibiotics are indicated, such as long-acting oxytetracycline (LA200®) in beef cattle or an appropriate antibiotic in dairy animals. Topical antibiotics and/or subconjunctival injections of appropriate antibiotics can also be applied if infected cattle can be properly restrained. An eye patch can also be used to cover the infected eye.

Control

Several commercial vaccines are available (see below). Fly control is important, such as: insecticide ear tags, insecticide sprays or backrubs, larval control feed additives, etc. Shade will decrease exposure to sunlight and clipping weeds on pasture will reduce the risk of eye irritation.

Vaccines

Pinkeye vaccines are bacterins which contain one or several killed strains of *Moraxella bovis*. It is recommended to give one injection in accordance with label instructions, 3-6 weeks prior to onset of the pinkeye season and to re-booster annually. Some of the commercially available pinkeye vaccines include: *Pinkeye Shield XT4* from Novartis; *20/20 Vision 7* from Intervet; *Alpha 7/MB* from Boehringer Ingelheim; *Piliguard Pinkeye* from Schering Plough; *TrustGuard MB* from Vedco; and *Pinkeye-3* from Aspen

Milk Urea Nitrogen (MUN)

Zen Miller, UW-Extension, Dairy/Livestock, Outagamie County
 Randy Saver, UW-Madison, Dairy Nutrition Specialist
 Michel Wattiaux, UW-Madison, Dairy Systems Management

What is it? What does it measure?

Milk Urea Nitrogen, (MUN), the concentration of urea nitrogen in the milk, is an indicator of the efficiency of utilization of dietary crude protein (CP). It is expressed in milligrams per deciliter, (mg/dl) with 95% of all values ranging from 5.0 to 20.0 mg/dl for a group of Holstein cows; the desired group or herd concentration is 10 to 12 mg/dl. Individual cow samples are not meaningful as there are season, breed, parity, milking frequency, and days in milk influences that affect MUN levels. However, bulk tank samples for one-group TMR herds and (or) string (group) samples from different TMRs can be evaluated with the corresponding TMR analysis report sheet to fine-tune rations. MUN is higher when (a) excess Rumen Degradable Protein (RDP) is fed, (b) excess Rumen Undegradable Protein (RUP) is fed, or (c) when RDP is not balanced with dietary Non-fiber Carbohydrates (NFC). Examples include feeding high levels of immature alfalfa silage as the sole forage in the diet, feeding too large an amount of raw beans, or feeding excess urea. These situations cause elevated rumen ammonia, blood urea (absorbed ammonia is converted to urea in the liver), and MUN.

How do we use it?

More and more milk processors are offering MUN test results on bulk tank samples taken at milk pick-up on the farm. These MUN values give a frequent look at how cows are utilizing the protein being fed. Poor utilization means that urea will end up in the blood, urine, and milk. Concentrations that are high (>14 mg/dl) for a herd or string suggests that CP, RDP, or RUP intakes may be above cow requirements or that dietary NFC may be too low. Concentrations that are low (<8 mg/dl) may suggest feed changes (lower protein haylage) or protein-limited rations. Poor feed mixing, poor delivery of TMR, or ration changes not accounted for by your nutritionist may also affect MUN.

What numbers are acceptable?

Current research suggests that for a herd or string of Holstein cows an MUN of 10 to 12 mg/dl is adequate and will optimize milk and protein yields while minimizing nitrogen excretion. In research conducted at the U.S. Dairy Forage Research Center by Glen Broderick, cows receiving 16.7% crude protein appeared to optimize milk, fat, and protein yields, however lower protein levels showed more efficient use of nitrogen. MUN guidelines for Brown Swiss and Jerseys may be one unit higher to optimize milk production.
 (See Table 1.)

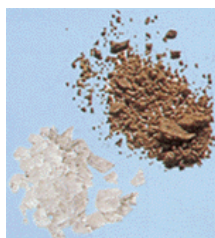
Interpretation of MUN for Group-Fed Holstein Herds*				
Stage of Lactation	<10	10-12	13-14	>14
Early 0-30 days	Lack Dietary Protein	OK		Excess Dietary Protein
Peak & Post-Peak 31-150 days	Intake & milk yield may be sub-optimal	Most Desirable	May be acceptable	Check dietary RDP, RUP and/or adjust NFC
Mid to Late >150 days		Most Desirable		
*For Jerseys & Brown Swiss herds add 1 unit to all MUN values. Table 1				

Why do you care?

Overfeeding protein is expensive and increases nitrogen excretion into the environment. Underfeeding protein may reduce milk income. Current guidelines recommend 17% CP (DM basis) diets for most lactating dairy cows. Many nutritionists have become more sophisticated with their formulations for RDP, RUP, and NFC. Besides being costly, excess protein is excreted as urinary nitrogen that is highly unstable on the farm, thus creating an environmental concern. Using MUN in combination with TMR analysis can help fine tune rations by looking for changes in the MUN levels before we notice changes in silage or other feedstuffs. Thus measuring and using MUN is a way to let the cow's own system tell us how we are doing with diet formulation and the feeding program.

Meth Labs: What's cooking on your farm?

What is meth? Methamphetamine (meth) is a powerful, highly toxic and addictive drug. Meth is also known as speed, crank, ice and crystal. It is a powerful upper that produces alertness and elation, along with a variety of adverse reactions. Meth represents the fastest growing drug threat in American today according to the National Institute on Drug Abuse.



Since anhydrous ammonia is a key component of making the drug, farmers can play an important role in protecting their communities.

Risks of Anhydrous Ammonia Theft?

Anhydrous ammonia can be extremely dangerous when it is not properly handled. Farmers face three main hazards when thefts occur at their farms:

- Accidental contact with anhydrous ammonia from malfunctioning valves and spilled or leaking materials.
- Explosive threat from anhydrous ammonia when it is placed in improper containers.
- **LIABILITY TO THE FARMER.** Farmers should be extremely cautious when finding empty containers on their farm, especially small barbecue propane tanks. Care should be taken if propane tanks are found with blue or green-colored valves. This indicates that anhydrous ammonia is stored in the container and the valve fittings may be faulty.

Because anhydrous ammonia is a known hazardous substance and creates a dangerous condition, farmers could be liable for the harm to any farm visitor including the trespassing thief.

What are the signs of anhydrous ammonia theft?

Since the amount of material stolen is relatively small compared to the total volume of the tank, tank users are often unaware that a theft has occurred. Only five gallons of anhydrous ammonia is needed to manufacture a large quantity of methamphetamine.

Two Ways to Recognize Theft:

1. Evidence of tampering with tank valves
2. The presence of certain signs that thieves may leave by the tank.

- Footprints in the soil
- Stained soil tank valves which are not tightly closed or which have been tampered with
- Items left near the tank such as duct tape, garden hoses, plastic tubing, bicycle inner tubes or coolers
- The presence of barbecue-grill propane tanks

Common Meth Lab Sites:

- Homes and apartments
- Hotels/motels
- RV parks or campgrounds
- Abandoned buildings
- Secluded farm fields or wooded areas
- Storage lockers

Common Meth Lab Signs:

Meth "cookers" leave dumpsites filled with these chemicals:

- Ephedrine or pseudoephedrine
- Match sticks/books
- Battery packages/tape
- Condensing bottles/coolers/plastic tubing
- Coffee filters
- Funnels
- LP/gas grill tanks
- Acetone/Coleman fuel cans



To Report A Suspected Lab, Call:

1-800-NAB DRUGS

1-800-622-3784

Wisconsin Drug Tips Hotline

Or ... 911

Polk County Sheriff's Department

For general questions and concerns about the health effects of meth labs, call: Polk County Health Department at 715-485-8500 or visit the web site at <http://www.co.polk.wi.us/health>