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Insects, Mites, and Nematodes

Winter Temperatures, Corn Flea Beetle Survival, and Potential for Stewart's Wilt - *(John Obermeyer, Larry Bledsoe, and Greg Shaner)*

- Corn flea beetle winter survival is expected to be *low* in northern Indiana.
- *Moderate* survival is expected for most of southern Indiana.
- Extreme southwest counties of the state may have high survival.
- Snow cover may have benefited some overwintering beetles.
- Corn flea beetle is a vector of Stewart's wilt of corn, which has two disease phases.
- Management guidelines for low and high susceptible corn is given below.

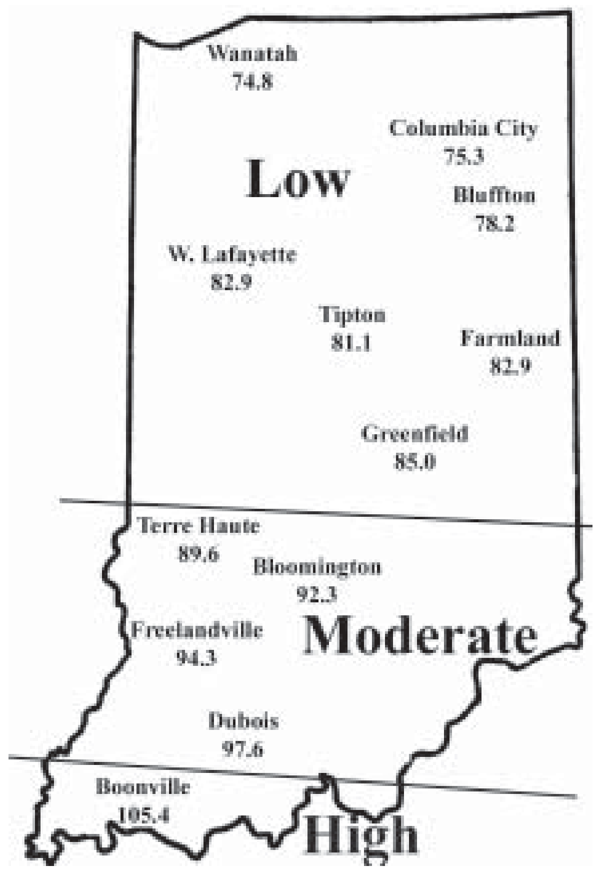
Corn flea beetle is a sporadic pest in Indiana. Winter temperatures in regions where beetles were abundant last season will determine if there is cause to be concerned this season. This is especially important since this insect can transmit the bacteria that cause Stewart's disease in corn. The severity of the disease correlates well with winter temperatures because the bacterium survives in the gut of the overwintering beetles. Warmer temperatures result in higher beetle survival, and greater potential for Stewart's disease. To determine the potential severity of Stewart's disease, add the average daily temperatures for the months of December, January, and February. If the sum is below 90, the potential for disease problems to develop is low. If between 90 and 100, moderate disease activity is a possibility. Sums above 100 indicate a high probability that severe problems will develop for susceptible corn. To help you better gauge the potential for corn flea beetle activity in your area, and thus the potential severity of the threat of the disease, we have created the following state map. According to the temperature model, there is low probability of corn flea beetle activity and subsequent disease in northern Indiana, moderate activity in areas south of approximately Interstate-70 to just north of the counties in extreme southwestern Indiana. Conditions were very favorable in the extreme southwestern counties for beetle survival which may result in the appearance of Stewarts's wilt in areas where the beetle is present this spring.

This temperature model for corn flea beetle has been around many years and has been fairly accurate in predicting the activity of this pest the following spring. However one inherent flaw is that the model is based on ambient air temperatures, not temperatures under leaf litter and grass clumps where this pest overwinters. As well, snow cover, which can provide an excellent insulating blanket for the insect, may protect some beetles from winterkill. Even with this "disclaimer" statement, we think the 2003/2004 winter was cold enough to have negatively impacted overwintering beetles in northern and central Indiana. Also, flea beetle numbers have been low statewide, in general, for the last couple years.

There are two phases of Stewart's disease: a wilt phase and a leaf blight phase. In the wilt phase, plants wilt rapidly, usually at an early stage of growth. Leaves emerging from the whorl of infected plants are often the first to wilt. Internal tissues at the growing point are discolored or hollowed out. Faint green to yellow streaks containing corn flea beetle feeding marks are visible on one or more leaves. If stalks of wilted plants are cut, it may be possible to see yellow, moist beads of bacterial ooze. Sweet corn hybrids are especially susceptible. Some dent corn inbreds, and occasional dent corn hybrids, and some popcorn lines are susceptible as well. Dent corn hybrids rarely wilt after growth stage V5. The leaf blight phase can occur at any time during the growing season, but often does not appear until after tasseling. Lesions are long and narrow, with pale green to yellow streaks and irregular or wavy-margins. Streaked areas die and become straw-colored. Severely infected leaves may die prematurely. Lesions on leaves of older plants may be confused with northern corn leaf blight. It is usually possible to see beetle feeding tracks in Stewart's disease lesions.

Management decisions made now, should be based on the corn's susceptibility to the disease and anticipated risk. *Low susceptibility/risk* - pest managers should scout fields and apply a <u>foliar rescue treatment</u> after planting if (1) beetle feeding damage becomes severe, (2) there are 5 or more beetles per plant, and (3) seedlings are growing slowly (e.g., cool temperatures). *High susceptibility/risk* - sample field edges and in-field areas of grass weed residue (i.e., overwintering sites) <u>before planting</u> to assess overwintering beetle survival and potential beetle movement to emerging corn plants. A sweep net is an ideal sampling tool for this pest. If any beetles are discovered at this time, an at-planting insecticide application is warranted. Counter CR, Furadan 4F, and Poncho 1250 treated seed are three systemic insecticides that should give good control of flea beetle. A phototoxic response may occur to some inbred varieties where Counter insecticide and sulfonylurea/triketone herbicides are used. Furadan may require re-tooling the planter for liquid application. Poncho 1250 (and Gaucho Extra for inbred seed) must be applied to seed by commercial seed treaters. Poncho 1250 is labeled for flea beetle protection through the 5th leaf stage. If a systemic soil insecticide is not an option, foliar insecticides broadcasted at the time when corn spikes should provide 7 to 10 days of residual protection from beetle feeding. CAUTION: treating of field edges and waterways for beetle control may be an off label application. Avoid movement of insecticides, including soil-bound materials into aquatic environments.

Expected Flea Beetle Winter Survival



Close-up of corn flea beetle and leaf feeding scars

Stewart's wilt in seed corn

Dead growing point of Stewart's infected plant

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Southwestern Corn Borer 2004 Spring Survey – (*Ric Bessin, Doug Johnson, Clint Hardy, Mike Smith, Nathan Howard, and Michael Keen, University of Kentucky*)

Southwestern corn borers spend the winter as larvae in galleries at the base of corn stalks. Stubble in cornfields can be checked during early spring for damaged plants and surviving borers. This can provide an indication of what the first generation may be like for 2004. A survey of southwestern corn borer damage and larval survival was conducted in Daviess and Henderson Counties, Kentucky on March 4. These counties were selected because of the past infestation history. The purpose was to estimate the extent of SWCB damage, as evidenced by basal stalk girdling. In addition, we wanted to estimate the survival of the overwintering larvae in the crowns of these damaged plants. In each county, four non-Bt corn fields were evaluated. Within each field, 10 groups of 10 plants were examined for girdling. An additional minimum of 50 girdled plants were examined for the presence of live SWCB larvae.

Kentucky 2004 SWCB Spring Survey Results

	Damaged Plants	Live SWCB Recovered
Daviess County		
Farm #1	21/100	1/50
Farm #2	15/100	0/50
Farm #3	19/100	1/50
Farm #4	4/100	2/50
Henderson County		
Farm #1	11/100	1/50
Farm #2	21/100	3/50
Farm #3	25/100	0/50
Farm #4	38/100	0/50

This is the sixth year that we have conducted such a survey. In comparison to the previous winters, we had the lowest levels of girdled plants, and the lowest survival of overwintering larvae because of the colder winter. Lower levels of girdled stalks were to be expected, because of a cool summer that produced only two SWCB generations and low overwintering survival from the winter of 2002.

Observed low levels of survival in the girdled crowns was welcome news. Of the girdled crowns sampled this spring, a large proportion had evidence of what appeared to be winter kill, dead larvae at the base of the gallery. Relatively few crowns had larva removed by birds from

Kentucky SWCB Spring Survey Results

Year	Girdled Stalks (%)	Survival/Girdled Stalk (%)	Overall Survival/Stalk (%)
2004	19.25	2.00	0.38
2003	26.57	4.25	1.13
2002	11.78	5.31	0.63
2001	40.58	9.66	3.92
2000	20.73	26.85	5.57
1999	35.89	10.14	3.64

the overwintering chamber. The survival was the lowest observed in the last five years. The survival of the larvae was the lowest in the past six years. This combined with the low numbers of overwintering larvae (as estimated by the incidence of girdled stalks) indicates that there are relatively few SWCB moths to begin the season as compared with the past years.

Keep in mind that overwintering survival is just one of the variables that will, in part, determine the potential for SWCB problems in 2004. Historically, the date of planting of individual fields has been a key variable contributing to the potential for late season SWCB damage. Although early season numbers seem to be very low, favorable conditions, may allow SWCB numbers to rebound by the second and third generations. Typically, fields planted after May 10 have an increased potential for this type of damage. Last year we had very low numbers of SWCB, but delayed planting made much of the crop more vulnerable to second and third generation borers.

What we can conclude:

- Thanks to the cold winter, we found low survival levels of SWCB larvae in each of the counties surveyed.
- Birds seem to feed heavily on SWCB larvae during the winter.
- Winter conditions were not sufficient to eliminate SWCB larvae.
  We expect low first generation SWCB pressure for those areas surveyed.
- Date of planting is still important. Corn planted after May 10 could be at risk to late season SWCB activity.

Weeds

Do Your Fields Have Winter Weeds in Them Today? – (*Bill Johnson and Glenn Nice, Purdue University, Mark Loux and Jeff Stachler, Ohio State University*)

Recent warm temperatures and rains have stimulated spring emergence and resumed growth of winter weeds such as purple deadnettle, henbit, chickweed, and marestail. In addition, dandelions have begun to green up and will require attention as well. The major problems with deadnettle, henbit, and chickweed are slow soil drying and interference with tillage and planting. So, the goal of managing these weeds should be to control them in a timely manner to allow time for weed desiccation and the soil to dry. Typically winter weeds and dandelion are more difficult to control in the spring versus in the fall, 1) because some metabolic processes in annual and perennial plants are different in the fall versus the spring, and 2) because cold weather reduces herbicide effectiveness.

You should consider making attempts to manage these weeds now (in March) if you have dense infestations at the current time and you have had problems with slow soil drying due to winter weeds in the past. There are a number of different herbicide combinations and approaches that are dependent on the weeds present and your planned herbicide program for summer annual weeds. Most of these are based on utilization of glyphosate or glyphosate + 2,4-D. At the current time we are also very concerned about continued spread and development of glyphosate resistant marestail. We recognize that glyphosate is very effective on a number of winter weeds. However, since over 90% of the soybean acres in Indiana and Ohio are Roundup Ready, we are recommending that you *consider* switching to burndown herbicides that do not include glyphosate in areas where glyphosate-resistant marestail is present. In areas where glyphosate resistant marestail has not been found, it is highly recommended that 2,4-D be added to glyphosate based programs. This will help to reduce selection pressure for glyphosate-resistant biotypes and hopefully prolong the usefulness of the Roundup Ready soybean technology.

For areas with heavy infestations of glyphosate resistant marestail, here are a few non-glyphosate programs to consider using for March burndown treatments.

For control of deadnettle, henbit, chickweed, and marestail before soybean:

- Sencor (8 oz./A) + 2,4-D (0.5 lb. ae/A)
- Canopy XL (2.5 oz./A) + Express (0.1 to 0.2 oz./A) + 2,4-D (0.5 lb. ae/A)
- Classic (1 oz./A) + Express (0.1 to 0.2 oz./A) + 2,4-D (0.5 lb. ae/A)
- Gramoxone Max (2 pt./A) + Sencor (4 or 5 oz./A) + 2,4-D (0.5 lb. ae/A)
- Sencor (5 oz./A) + Python (0.8 to 1 oz./A will also provide some lambsquarter and velvetleaf suppression) + 2,4-D (0.5 lb. ae/A)

For control of deadnettle, henbit, chickweed, and marestail before corn:

- Atrazine 1.5 lb. ai/A + 2,4-D (/0.5 lb. ae/A)
- Gramoxone Max (2 pt./A) + atrazine (1 lb. ai/A) + 2,4-D (0.5 lb. ae/A)
- Atrazine (1.5 lb. ai/A) + Aim 0.3 (oz./A)

- Balance Pro (2.2 oz./A) + atrazine 1.5 lb. ai/A + 2,4-D (0.5 lb. ae /A)
- Callisto (3 oz./A) + atrazine (0.3 lb. ai/A)
- Sencor (5 oz./A) + Python (0.8 to 1 oz./A will also provide some lambsquarter and velvetleaf suppression) + 2,4-D (0.5 lb. ae/A). This can also be used prior to soybean production.

If you also have dandelion in the fields infested with the winter annuals described above, increase the 2,4-D rate to 1 lb. ae/A and keep in mind that you will need to wait 30 days before planting soybean.

If dandelion is the primary target, then you should consider waiting to spray until April. Research at OSU has found that the optimal spring treatment for dandelion control is a combination of 2,4-D (1 lb. ai/A) and glyphosate (0.75 lb. ae/A) applied between April 10 and May 10. If you have fields with heavy infestations, a followup treatment of glyphosate in Roundup Ready soybean or Distinct or 2,4-D in corn will help to further reduce the infestation.

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Broadleaf Weed Control in Winter Wheat – (*Bill Johnson and Glenn Nice*)

Unlike corn and soybean, only a handful of herbicides are registered for the control of broadleaf weeds in winter wheat grown in Indaina. Herbicides, rates and their application timings are listed in the Table on the following page.

It is also important to be aware that restrictions exist concerning application timing of these herbicides to avoid crop injury. Phenoxy herbicides, such as 2,4-D and MCPA, control a number of annual broadleaf weeds and are the least expensive of these herbicides to use. However, proper application timing of the growth-regulating herbicides 2,4-D, MCPA and Banvel is critical to avoid crop injury and possible yield losses. These herbicides can cause substantial crop injury and yield loss in small grains if applied before tillering begins or after development of the grain heads has been initiated. (See graphic on next page.)

The exact time at which grain heads have been initiated is not easy to determine, but this event always just precedes stem elongation. The occurrence of stem elongation can be easily detected by the appearance of the first node or "joint" above the soil surface, commonly referred to as the "jointing stage." Pinch a wheat plant stem at the base between the thumb and forefinger and slide your fingers up the stem. The presence of a node or joint will be felt as a hard bump about an inch above the soil surface. Slicing the stem lengthwise with a sharp knife will reveal a cross section of the hollow stem and solid node. If jointing has occurred, applications of 2,4-D, MCPA and Banvel should be avoided because crop injury and yield loss are likely. Research from the University of Missouri Weed Science program has shown a 3- to 6-bushel per acre yield loss from 2,4-D and Banvel applications to wheat after the jointing stage.

MCPA alone at labeled rates should be applied before jointing. However, the amount of MCPA applied in Bronate, a combination of bromoxynil and MCPA, is low enough to permit later applications.

As a final note, many wheat fields in Indiana contain wild garlic and wild onion. Although not considered as strong competitors with a wheat crop, wild garlic (*Allium vineale*) and wild onion (*Allium canadense*) are both responsible for imparting a strong odor to beef and dairy products. Wheat producers and grain elevator operators are very familiar with dockages that occur with the presence of wild garlic or onion bulbs in their harvested grain. Found throughout Missouri, wild garlic is a native of Europe, while wild onion is native. Despite the fact that these perennials both occur in similar habitats, wild garlic occupies the majority of small grain settings, including wheat.

Control measures for wild onion and wild garlic will differ. Producers, consultants and industry personnel will want to make certain that they are able to distinguish between these two weed species. The vegetative leaves of wild garlic are linear, smooth, round and hollow (flowering stems are solid). A major difference with wild onion is that its leaves are flat in cross section and not hollow. Another varying feature are the underground bulbs. Wild garlic's bulbs have a thin membranous outer coating while wild onion's bulbs have a fibrous, net-veined coating.

Harmony Extra (thifensulfuron + tribenuron) is the herbicide most commonly used for control of garlic in wheat, plus it controls a relatively wide spectrum of other broadleaf weeds and possesses a fairly wide application window. Harmony GT (thifensulfuron) also has activity on wild garlic, but is considered to be slightly weaker than Harmony Extra. Peak is also labeled and effective on wild garlic in wheat, but it is fairly persistent in soil. The Peak label does not allow one to plant double crop soybean following wheat harvest in Missouri. Wild onion is controlled with 2,4-D. Keep in mind that both of these weeds are perennials and the full labeled rate is needed for adequate control.

Table 1. Herbicides to control broadleaf weeds in winter wheat.

Active Ingredient	Trade Names(s)	Rate per Acre	Application Timing	Weeds Controlled
Bromoxynil	Buctril, Moxy	1.5 to 2 pts.	Emergence to boot stage	Wild buckwheat, common ragweed, lambsquarter, field pennycress, henbit, shepherdspurse, wild mustard
2,4-D	Weedar, Weedone, Formula 40, others	1 to 2 pts.	Tillering to before jointing	Field pennycress, shepherdspurse, wild mustard, ragweeds, lambsquarter, horseweed (marestail), prickly lettuce, wild onion
Dicamba	Banvel	0.125 to 0.25 pt.	Emergence to before jointing	Field pennycress, wild buckwheat, ragweeds, kochia, lambsquarter, horseweed (marestail), prickly lettuce, shepherdspurse
Thifensulfuron	Harmony GT	0.3 to 0.6 oz.	After 2-leaf stage but before flag leaf becomes visible	Wild garlic, field pennycress, wild mustard, chickweed, henbit, shepherdspurse, lambsquarter
Thifensulfuron + tribenuron	Harmony Extra	0.3 to 0.6 oz.	After 2-leaf stage but before flag leaf becomes visible	Wild garlic, field pennycress, wild mustard, chickweed, henbit prickly lettuce, shepherdspurse, lambsquarter
MCPA	Chiptox, Rhomene, Rhonox	1 to 4 pts.	Tillering to before jointing	Field pennycress, shepherdspurse, wild mustard, ragweeds, lambsquarter, horseweed (marestail), prickly lettuce, wild buckwheat
Bromoxynil + MCPA	Bronate, Bison	1 to 2 pts.	After 3-leaf stage but before wheat reaches boot stage	Same as bromoxynil and MCPA
Carfentrazone	Aim	0.33 to 0.66 oz.	Before jointing	Catchweed bedstraw, lambsquarter, field pennycress, tansy mustard, flixweed

Table 2. Wheat yield following 2,4-D and Banvel applications at Columbia, MO (pooled over 1998 and 1999).

Herbicide	Before Jointing (bu/a)	After Jointing (bu/a)
2,4-D	40	37
Banvel	43	37

Plant Diseases

Growth Stages of Wheat - (*Gregory Shaner and Bill Johnson*)

• Assessing wheat growth stage is important for making management decisions.

For effective management of wheat, it is important to recognize the stages of growth as the crop develops. Heading date is a common indicator of relative maturity, but the ability to recognize other growth stages is important for judging the progress of the crop and making management decisions, such as application of fertilizer, herbicides, or fungicides, and for predicting the consequences of disease or injury to the crop.

Two scales are commonly used to record the growth stage of wheat: the Feekes scale and the Decimal (Zadoks) scale. The Feekes scale is older and has been used widely since the early 1950s. The Decimal scale is designed to make finer distinctions among stages of crop growth, and is probably used more in Europe than in the US, although pesticide labels in the US are starting to use both scales.

In the Feekes scale, growth stages are divided into 11 major categories. Head emergence, flowering, and grain filling (Feekes Growth Stages 10 and 11) are further subdivided. The Feekes Growth Stage scale is presented below, with a description of crop development stage that corresponds to each number. Corresponding Decimal Growth Stages are given in brackets.

Feekes Growth Stages for Wheat

FGS	Description
	Tillering
1	One shoot [DGS 10-1x; x=no. leaves on main stem]
2	Beginning of tillering [DGS 21]
3	Tillers formed [DGS 2x; x=number of tillers]
4	Beginning of erection of the pseudo-stem, leaf sheaths beginning to lengthen [DGS 30]
5	Pseudo-stem (formed by leaf sheaths) strongly erected [DGS 30]
	Stem extension
6	First node visible at base of shoot (≥1 cm between crown and next node above the crown) [DGS 31]
7	Second node of stem formed (distance between first and second aboveground nodes ≥2 cm), next-to-last leaf just visible [DGS 32]
8	Flag leaf visible, but still rolled up, head beginning to swell [DGS 37]
9	Ligule of flag leaf just visible [DGS 39]
10	Sheath of flag leaf completely grown out, head swollen in boot but not yet visible [DGS 41-49]
	Heading
10.1	Heads just visible (head escaping through slit in sheath) [DGS 50]
10.2	Heads one-fourth emerged [DGS 53]
10.3	Heads one-half emerged [DGS 55]
10.4	Heads three-quarters emerged [DGS 57]
10.5	Heads fully emerged [DGS 59]
	Flowering
10.5.1	Beginning of flowering [DGS 61]
10.5.2	Flowering complete to top of head [DGS 65]
10.5.3	Flowering over at base of head [DGS 67]
10.5.4	Flowering over, kernel watery ripe [DGDS 69-71]
	Ripening
11.1	Kernels milky ripe [DGS 73-77]
11.2	Kernels mealy ripe, contents of kernels soft but dry (soft dough) [DGS 83-85]
11.3	Kernels hard, difficult to divide (hard dough) [DGS 87-89]
11.4	Ripe, straw dead, ready for harvest [DGS 92]

There are 9 major divisions (1-9) in the Decimal scale, with 10 possible subdivisions (0-9) for each major division. For example, the tillering stage is denoted by 2 in the Decimal scale, and the second digit indicates the number of tillers per plant. The Feekes scale simply notes whether tillers have begun forming (FGS 2), or whether tillering is essentially completed (FGS 3), without requiring the counting of tillers, although tiller number per plant could be appended after the "2", e.g. FGS 2.4.

In winter wheat, the period from beginning of tillering to completion of tillering may extend for a considerable time, from autumn into the following spring. Likewise, the precise limits of FGS 4 and 5 are not clear. Depending on planting date, variety, and weather in the fall, plants may reach the pseudo stem erection stage in the fall, or only in the spring as the crop comes out of dormancy.

Jointing (FGS 6) can be clearly determined. The original Feekes scale simply defined stage 6 as when the first node was visible at the base of the shoot. The Decimal scale provides a more precise definition for this stage, namely when the distance between the crown and the first stem node is at least 1 cm (0.4 in.), and we have included this in the growth stage table. When the second aboveground node is at least 2 cm (0.8 in.) above the first node, the plant has reached FGS 7. The ability to recognize FGS 6 is important because it's the cutoff for many herbicides, especially those that contain 2,4-D, dicamba (Banvel, Clarity), or MCPA. Application of these products after jointing can result in malformed heads, sterility, and reduced yield.

The stage when the flag leaf first appears (FGS 8) is important for application of a foliar fungicide. Soft red winter wheat in Indiana typically has 4 aboveground nodes when fully developed. The sheath of the uppermost leaf (flag leaf, F) arises from the top node. The leaf below the flag leaf (F-1) arises from the next node down, etc. Thus, leaf F-3 arises from the lowest aboveground node. The lowest aboveground node is near the ground when it first appears, but will move upward somewhat as the stem elongates. At FGS 8, there are usually two clearly differentiated nodes on the stem. The lower node will average about 7 cm (2-3/4 in.) above the soil line. The second node (from which leaf F-2 arises) will be about 15 cm (6 in.) above ground. The third node will usually be visible, but because it is only about 1 cm (0.4 in.) above node 2, it is not counted. As the wheat continues to grow, the distance between nodes increases, and the fourth node becomes evident. Feekes 8 is the cutoff for Harmony Extra and Harmony GT, two products that are commonly used for control of wild garlic, and Express, commonly used for control of chickweed, Canada thistle and other winter annuals. Feekes growth stage 9 is the cutoff for Stinger and Buctril. Stinger is commonly used for Canada thistle, dandelion, and marestail control and Buctril for mustards, lambsquarters, ragweeds, and smartweeds.

Once the flag leaf blade has fully emerged, the flag leaf sheath extends. By this time, the head enclosed in this leaf sheath is swelling, and the plant enters the boot stage (FGS 10). The heads of all plants in a field will not emerge from the boot synchronously. Stages 10.1 through 10.5 are best assigned according to when heads on about half the plants have reached the indicated degree of emergence.

Flowering in wheat begins roughly in the middle of the head and progresses both upward and downward. Flowering at a given position in the head can be judged by the presence of extruded anthers.

Ripening is judged by removing developing kernels from the center of several heads and determining whether the contents are watery, milky, or at the soft or hard dough stages.

By the time wheat has reached FGS 8, leaves F-5 and below are usually withered, from infection by *Septoria*, *Stagonospora*, and other fungi. The next leaf up (F-4) usually withers about the time heads have fully emerged. In the absence of *Septoria* and *Stagonospora* blotches, powdery mildew, or other foliar diseases, leaves F-3 through F should remain green until the wheat approaches maturity. Often, however, disease destroys leaves at each layer of the canopy prematurely. Fungicide control is aimed at maintaining these leaves, particularly F and F-1, in a healthy condition.

If a grower is planning to apply a fungicide at flag leaf emergence (FGS 8), it would be helpful to know when that stage will be reached, relative to some earlier, easily determined growth stage. The jointing (FGS 6) and 2-node (FGS 7) stages can be accurately determined if a wheat field is monitored frequently. The time required for a plant to progress from either of these stages to FGS 8 is not constant. It depends on weather conditions, particularly temperature. Over many years, we have monitored wheat crop development in various field trials, and the following observations can give some guidelines for the time required for plants to progress from one growth stage to another. We found that it takes about a week to progress from FGS 6 to FGS 7, and another 8 days to go from FGS 7 to FGS 8 (with a range of 5 to 10 days). It can take from 3 to 8 days for the flag leaf blade to fully expand (going from FGS 8 to FGS 9). It can take from 9 to 16 days to progress from FGS 9 to full head emergence (FGS 10.5) or the beginning of flowering (FGS 10.5.1).

An Online Soybean Pest Management Survey – (*Frankie Lam and Chuck Mansfield*)

An online soybean pest survey has been developed from discussion at a two-day Pest Management Strategic Plan (PMSP) meeting held at Bowling Green, Kentucky in August 2003. Representatives included were soybean producers, commodity group representatives, industry representatives, and extension personnel from Kentucky, Tennessee, Illinois, and Indiana. A PMSP is a document outlining pest problems, including disease, insect, weed, and others, and identifies the important tools, such as cultural and chemical tactics, needed to manage them.

The region comprised of western Kentucky, western Tennessee, southern Indiana, and southern Illinois has some unique production and pest management issues. This region lies in a transitional zone between southern and northern production areas, but it is uniquely different from either in many respects. For example, major pests from both areas may be present, but the severity of infestations may fluctuate based on environmental conditions. The purpose of this survey is to gather producer, industry, and extension input on critical pest issues relative to soybean production in this region of the country. This information will be used by the United States Department of Agriculture (USDA) and the Environmental Protection Agency (EPA) in making decisions about pesticide registration issues and prioritization for the funding of extension and land-grant or government research projects.

You can access this survey at: <http://www.sripmc.org/KY/SoybeanPMSPSurvey/>.

This survey was developed through the Kentucky Pest Management Center (KPMC). The Center is a grant-funded program in the UK Entomology Department. They develop Crop Profiles and Pest Management Strategic Plan documents for commodities in Kentucky and the region. These documents were designed as a method for producers and those with first-hand or hands-on knowledge to provide input on what pest management tools are most critical for the production of the commodities.

This online survey has been developed to allow convenient, fast method of input for soybean producers and others to document the pest problems they face in their fields. This is a wonderful opportunity to collectively provide information to the USDA and EPA on current troublesome pests and the potential impact of emerging pests. We encourage those involved with soybean production in this region (producers, industry, and extension) to take 10-20 minutes to provide your input on these critical pest management issues.

More information can be found at <http://www.uky.edu/Agriculture/KPMC/newsupdate.htm>.