

# Wheat Science News

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### **MAXIMIZE WHEAT YIELD POTENTIAL DESPITE LATE PLANTING DATES**

*Carrie Knott—Extension Grain Crops Specialist*

For most areas in Kentucky, this spring and summer has been unseasonably wet and cool. Since April rainfall across Kentucky has been almost 6 inches above normal and the daily high temperatures have been almost two degrees Fahrenheit cooler than normal. These unseasonably wet and cool spring and summer conditions delayed corn planting. This year on May 19 only 56% of the corn was planted as compared to 75% for the five-year average. This will likely delay corn harvest. As of September 1 only 1% of corn was harvested as compared to 12% for the five-year average. Wheat producers need to be prepared for delayed plantings this year due to delayed corn planting, development and harvest.

To attain maximum yield potential the University of Kentucky recommends planting wheat between October 10 and October 30. If wheat planting is delayed then yield potential can be reduced, depending on weather conditions, due to decreased fall tillering, cold injury, and heaving (uplifting of plant and root systems from the soil due to freezing and thawing of the soil). If wheat planting must be delayed this year due to late corn harvest and/or adverse weather conditions, consider increasing seeding rates. For each two week delay in wheat planting, past October 30, increase seeding rates by two to three seeds per square foot (one to two seeds per linear foot of row). Increasing seeding rates will likely compensate for reduced fall tillering of late planted wheat and increase yields of late planted wheat.

The soil condition of wheat fields is also of great concern this year. Unseasonably wet conditions this year likely eliminated any nitrogen carryover from the corn crop. Consider applying 20 to 40 lb N/acre at or near planting, particularly if wheat planting occurs after the first week of November and is following corn. Soil compaction is another concern. Many producers 'mudded in' corn fields this year. This will result in soil compaction problems. If wet conditions are also present at corn harvest soil compaction will be worsened. Soil compaction reduces wheat yield potential; therefore scout fields early and be prepared to correct any soil compaction problems that are detected.

Additional considerations for a timely and effective wheat planting season is even distribution of corn residue throughout the field in no-till systems. This will ensure that seeds are drilled to the proper depth of 1 to 1.5 inches, which will reduce risks of cold injury and heaving. Because of very little time that will likely be between corn harvest and wheat planting consider calibrating wheat drills now before corn harvest begins. With thoughtful planning the potential wheat yield reduction due to late plantings can be minimized.

*We would like to introduce Dr. Carrie Knott to you. She is our new Extension Grain Crops Specialist located at Princeton. She is a native Kentuckian from the Owensboro area and received her Ph.D. from UK under Dr. Dave Van Sanford. She chose to come back to Kentucky from a position at LSU. Welcome Carrie!*

## MARESTAIL MAY CHALLENGE WHEAT GROWERS THIS FALL

*James R. Martin, Extension Professor of Weed Science*

The change in emergence patterns for marestail (also known as horseweed) may influence how we manage this weed in wheat this fall. Historically most of the marestail in Kentucky emerges in March through May with occasional plants emerging through early fall. There is mounting evidence the number of plants emerging late summer & early fall may be greater than normal (see Figure 1).



Figure 1. September 9th photograph along edge of corn field illustrates multiple flushes of marestail based on various sizes of emerged seedlings: ½ inch diameter on left, 3 in diameter on right and 5 in diameter in center.

Some of the changes with this pattern occurred last fall when a number of fields had young marestail seedlings. Plants that emerged last fall and survived over the winter in the rosette stage were somewhat hardened off and more difficult to control with spring-applied burn-down programs. This set the stage to begin this summer with greater than normal escapes showing up in a number of grain crop fields.

Problems with spreading of marestail were enhanced by the fact there was an increase in the number of non-crop areas that harbored marestail such as ditch banks, fence rows, and roadside guardrails. These areas provided a favorable environment for marestail to produce seed that can be blown long distances. Much of the marestail in these areas have well developed seedheads that are capable of producing as many as 200,000 seeds per plant.

Also, the abundance of moisture throughout this summer facilitated late-season emergence and survival of marestail along edges of fields or places where there was not a lot of competition. Fields that have the greatest risk for developing problems with marestail in wheat this fall are those that are harvested early. Fields where corn was recently removed for silage will be good candidates for developing marestail this fall.

### CONTROL STRATEGIES

Planting a competitive stand of wheat can help manage marestail. UK research shows a competitive stand of wheat can limit the number of spring emerged marestail by 83 to 99%. However, the system has its limitations.

Marestail will likely be a problem if it is allowed to emerge in wheat this fall and not controlled before it overwinters. Tramlines and skips in the field are good places where marestail can also emerge.

Tillage is generally an effective method for eliminating emerged marestail. However, equipment that only scratches the surface may not remove marestail plants that are well established. Some of the drawbacks with tillage are the increased risk for erosion and the extra time it requires. The delay in corn harvest due to the slow drying of corn this season may limit the amount of time for doing any tillage before wheat planting.

Check the fields well in advance in order to allow time to develop a strategy for managing any marestail populations that have emerged.

Table 1 lists some herbicide options for managing marestail in this year's wheat. Most of the marestail in KY is resistant to glyphosate. Using multiple modes of action is a good strategy to limit the development of marestail that is resistant to other herbicides.

**TABLE 1. HERBICIDE OPTIONS FOR CONTROL OF MARESTAIL IN WHEAT**

PREPLANT OPTIONS	REMARKS
Sharpen 1 – 2 oz/A + (MSO + AMS)	Add glyphosate or Clarity to enhance burndown control of other weeds. The high rate of Sharpen may provide limited residual control in the fall, but not through spring. Sharpen is a PPO inhibitor.
Clarity 4 oz/A (See label for additives)	Add glyphosate to enhance burndown control of marestail and other weeds before planting. The 4 oz/A rate of Clarity may be applied before, during, or after planting. A higher rate may be needed for established marestail. A minimum of 15 days between spraying and planting wheat is required for every 8 oz of product /A. Other dicamba products include: Banvel, Clash, Detonate, Diablo, Rifle, Sterling Blue, Strut, and Vision. Dicamba is a synthetic auxin.
Valor 2 oz/A (See label for additives)	Allow a minimum of 7 days after application before planting wheat. Use Valor only in no-till plantings where the previous crop residue has not been incorporated in the soil. Plant wheat a minimum depth of 1 inch. Injury may occur with heavy rain during wheat emergence. It is unlikely Valor alone will control emerged marestail; therefore, add glyphosate or paraquat to enhance burndown control of emerged plants. Valor may provide up to 70 to 80% residual control of marestail into next spring depending on soil temperature and moisture. It also has ‘some’ soil-residual activity on Italian ryegrass. Valor is a PPO inhibitor.
Gramoxone SL 2.0 2.5 to 3pt/A + (NIS)	Mix with Valor or dicamba to enhance control of emerged marestail. Valor may provide residual control of marestail. Other products containing paraquat are: Bonfire, Firestorm, Para-Shot, Paraquat concentrate, Parazone, and Quick-Quat. The formulations may vary in concentration; therefore, consult label for specific rate. Paraquat is a photosystem II inhibitor.
POSTEMERGENCE OPTIONS	REMARKS
Huskie 13.5 oz/A + (NIS + UAN or AMS)	Huskie is a premix of pyrasulfotole + bromoxynil (Buctril) + mefenpyr (Safener). Apply Huskie to wheat in the first-true leaf stage to flag leaf when broadleaf weeds are about 4” tall. Huskie needs to be applied in the fall in order to comply with the 4 months-rotational interval for soybeans. UK research shows that Huskie applied in mid-March to early April provided 91 to 99% control of spring-emerged marestail seedlings. Additional research is needed to evaluate Huskie on managing fall-emerged marestail in Kentucky. Bromoxynil is a photo system II inhibitor. Pyrasulfotole is a HPPD inhibitor.
Harmony Extra SG 0.9 oz/A + (NIS)	Apply after 2- leaf stage and before flag leaf is visible. Research has shown that Harmony Extra alone in mid-March to early April provided about 50 to 75% control of marestail seedlings in the spring. Including 2,4-D and dicamba with Harmony Extra in the spring provided 84 to 95% control of marestail seedlings. Note that 2,4-D should NOT be used in fall applications; whereas, dicamba is labeled for use in wheat before, during or after planting. Be aware ALS-resistant marestail has been reported in Ohio and other states. Products similar to Harmony Extra include Audit and Nimble. Harmony Extra is a pre-mix of ALS inhibitors.
Metribuzin 75DF 2 to 8 oz/A	Apply after crop has at least 2 leaves and before jointing. When metribuzin rate is $\geq 4$ oz/A, secondary roots should be greater than 1 inch long ; treatments should not be applied before 75 days after planting; and allow at least 2 weeks for crop to recover from winter dormancy before treatment. Injury may occur if wheat is planted less than 1 inch deep. Metribuzin applied this past spring at 6 oz/A in early April provided 89% control of marestail seedlings in the spring. Consult label for lower rates applied to seedling wheat in the fall. More research is needed on using metribuzin at lower rates in the fall for fall emerged marestail seedlings. Very little information is known on sensitivity of current wheat varieties to metribuzin. Other metribuzin products are: Dimetric, Glory, Metri DF, and Tricor DF. Metribuzin is a photosystem II inhibitor.
ADJUVANTS: NIS (Non-ionic Surfactant) MSO (Methylated Seed Oil) UAN (Urea Ammonium Sulfate) AMS (Ammonium Sulfate)	