

WEST CENTRAL MISSOURI  
SUMMER 2010

## An easy alternative to honeybees

Fruit and vegetable producers know the value of attracting pollinators to their fields.

Farmers can establish native pollinator habitat with simple management practices.

First preserve existing pollinator habitats. Install field borders to introduce native forbs. Use attractive green manure species for cover crops.

Decrease tillage depth to less than 5 inches. Do away with tillage in areas that are rich in ground-nesting bees.

Create, install and maintain nest blocks for wood-nesting bees.

Also avoid applying insecticide applications during peak periods of pollinator activity.



David Cappaert, Michigan State University

## a look ahead

**July 27-30 - Crop Injury Diagnostic Clinic, MU Bradford Research and Extension Center**  
[aes.missouri.edu/bradford/events/crop-clinic.php](http://aes.missouri.edu/bradford/events/crop-clinic.php)

**Sept. 7 - Master Gardener Training Classes, Ray and Lafayette counties**  
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## Bees enhance fruit and vegetable harvests

**About 35 percent of the food that we eat is the direct result of insect pollination. To many producers, this process is an integral part of the production cycle.**

Historically, this service has been optimized through the use of managed European honeybees. With a decline in managed hives for rent, producers are encouraging habitat establishment for native bees as a means to help meet their yield goals. By at least partly relying upon indigenous species of insects to provide pollinator service, farmers of insect-pollinated crops are less vulnerable to insufficient yields.

Native pollinators work differently than honeybees. Unlike honeybees, native bees are undeterred by rain, cold weather and overcast conditions. This is particularly important for fruit growers whose crops flower in the spring.

Native bees generally have the ability to access flowers that honeybees pass by. This, along with native bee's aptitude to make honeybees more effective by disrupting their flight patterns, points

to their ability to add economic value by enhancing pollination and yield.

Fortunately, establishing native pollinator habitat is quite simple. A quick assessment of the farm may reveal that these habitats already exist; typically along fence rows, under power lines and along stream banks. By simply leaving these areas alone, a farmer can foster the growth of native insect populations. Many conservation practices already installed on the farm can easily be modified to include native forbs to attract native insect populations.

"Farming for Bees," offered by the Xerces Society for Invertebrate Conservation, is available at no charge at <http://www.xerces.org/guidelines-farming-for-bees/>. The publication provides information on the value of native pollinators in agriculture and how to enhance native pollinator populations.

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## How to improve neglected pastures

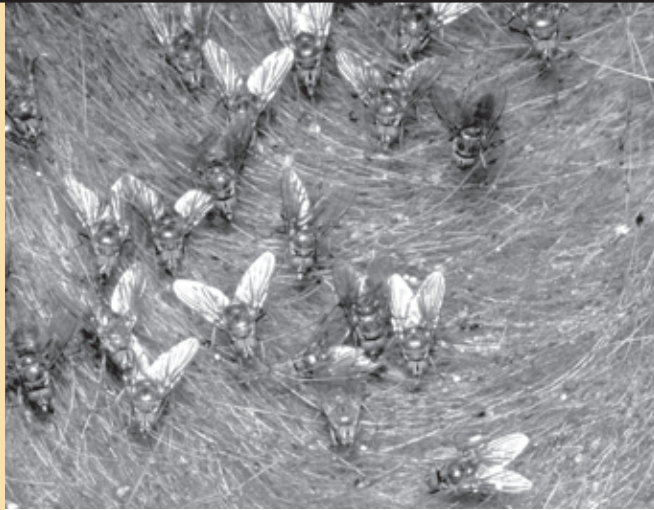
A close look may reveal stunted fescue plants growing in an abused pasture. A soil test will indicate whether the pH and/or fertility is too low for plants to thrive.

If no desirable forages are present, weeds can become opportunistic. The best approach is to thicken the forage stand so weeds don't germinate. Overseeding with legumes can help improve forage quality and reduce fescue endophyte problems.

Herbicide applications can kill desirable legumes, so overseeding may have to wait until weeds are under control. Consider spot-spraying areas with heavy infestations or renovating only a portion of the field at any given time.

By improving soil pH, adding forages and controlling weed infestations, you can transform a neglected pasture into a healthy and thick stand of grass and legumes.

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**Flies cost the cattle industry more than \$500 million each year, causing decreased weight gain and milk production and transmitting diseases such as pinkeye and anaplasmosis.**

Face flies and house flies feed on liquid substances around the eyes, nose and mouth of cattle and blood from wounds. Horn, stable and horse flies and some gnat species transmit disease organisms by piercing the cow's skin to suck blood.

Face and horn flies are the two most common types that attack cattle. Face flies spread bacteria that cause pinkeye, reducing average weight gain in calves by 17 pounds when one eye is affected and 30 pounds to 65 pounds when both eyes are infected. Because these insects spend little time on the animal, they are difficult to control with pesticides.

Horn flies feed up to 30 times per day, primarily on the back and shoulders of cattle. The pest spends its entire life cycle on the animal, leaving only to lay eggs in fresh manure.

Effective fly control may require combined use of products. The recommended economic threshold level for a pesticide program is 200 flies per animal. Insecticides to control flies can be applied by ear tags, sprayers, back rubbers, dust bags and pour-on and oral methods.

Organophosphate ear tags effectively control horn flies, but are less effective with face flies. Because horn flies can become resistant to pyrethroid ear tags, alternate the two types each year. Remove ear tags at the end of the season to prevent

resistance in flies by constant exposure to sub-lethal doses of pesticide.

Regardless of the method used, timing is critical to the effectiveness of a fly control program. Pesticide strength of ear tags placed too early can diminish before peak fly season. Pour-on liquids and sprays provide immediate control but are short in duration.

Reapplication is typically needed at 30-day intervals throughout the fly season. Back rubbers and dust bags can be effective when strategically placed to come into contact with cattle, for example, near mineral feeders and watering areas.

## Cost-effective fly control

The recommended economic threshold for a pesticide program is 200 flies per animal.

**Flies spread disease, costing the cattle industry \$500 million each year.**

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## Fall offers opportune time for fertilizer applications

**Fall is the best time to take care of most activities related to soil fertility. As opposed to the spring, temperatures in the fall tend to be more favorable, rainfall is typically less plentiful, farmers usually have more time and fertilizer is readily available.**

For these reasons, fall has been the historical time for phosphorus and potassium applications. Typically, phosphorus and potassium applied in the fall is just as available to the next year's crops as it would be if application was delayed until spring.

The main problem with fall application is that the most common form of phosphorus fertilizer, diammonium phosphate, also contains nitrogen in the form of ammonium. If DAP is applied when soil temperatures are still warm in the fall, the ammonium is converted

to nitrate. Heavy spring rains may cause significant nitrogen loss and very little nitrogen may be left over for the ensuing crop. To prevent nitrification of the ammonium portion, DAP should be applied after soil temperatures cool to below 50 degrees Fahrenheit.

Fall soil testing will indicate whether there is a need for lime. Several months are needed in conventional tillage systems, and even longer in no-till systems, for applied lime to raise the pH of an acidic soil.

Spring soil sampling and lime application will have little effect on that year's crop. Fall testing and lime application will provide some benefit for a crop planted the following spring.

Manure should be applied only on soils that need phosphorus and potassium. As with commercial fertilizer,

phosphorus and potassium in manure will be available to the following year's crop when applied in the fall.

Manure also contains significant amounts of nitrogen. Typically in corn and forage systems, priority is given to the nitrogen portion. Manures that have high inorganic ammonium content are prone to nitrification and should be applied in late fall after soils cool, much like DAP.

Manures with high organic content require microbial mineralization and should be applied earlier in the fall for nitrogen to be available in the spring.

## The benefits of soil testing

Soil testing is the best way for producers to determine the amount of phosphorus and potassium available for crop use.

In the spring, it may be a challenge to collect soil samples, get them analyzed and receive the results in time to apply fertilizer, especially if the weather is not cooperating.

In the fall, soil analysis laboratories tend to be less busy so the turnaround time for a sample may be less than a week. This gives the farmer the option of applying fertilizer in either the fall or spring, depending on available time and existing weather conditions.

If fields are sampled in the fall, they should be sampled at the same time thereafter.

Soil testing is available through your local University of Missouri Extension Center. Test results include recommendations for environmentally safe, economical and balanced fertilizer and lime applications.

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### **Selling the farm experience through agritourism**

**Agritourism can diversify revenue sources, establish an alternative marketing outlet, generate price premiums for farm products, create an opportunity to capitalize on the aesthetic value of agricultural land and create opportunities for a farm owner to share his passion for agriculture with others.**

Operate any agritourism venture as a business. Determine whether your goal is to supplement cash flow or simply provide nonprofit educational fun and enjoyment to others. Conduct market research and resource assessment to identify your potential customers. Will you try to attract families, retired people, school children or some other group? Will you try to draw local residents, people from a nearby city, travelers along a major highway or others? Your marketing efforts should be based on who you intend to attract to your agritourism business.

Consider what characteristics of your farm will attract your target population. This is where your farm resources come into the picture. Do you offer a peaceful place in the country where couples can come to get away from the hustle and bustle of the city, an educational venue for elementary schools, a paradise for hunters or recreational opportunities for horse owners/riders?

Take the time to write a business plan that clearly defines the nature of your business. The business plan will help you determine how to accomplish your goals and help you communicate your idea to people who may be able to help you succeed. For more information about business planning and resources to help you start an agritourism venture, contact your local MU Extension office.

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