



Innovative Small Farmers' Outreach Program (ISFOP): West Central Region

Cover Crops for Profit

By Susan Jaster

Cover crops, or green manure as they are sometimes referred to, are legumes, grasses and brassicas (plants from the mustard family such as cabbage, kale or broccoli). The use of a cover crop can lead to major improvements in the soil, such as increased water infiltration, reduced compaction, and prevention of soil erosion. Long-term use of cover crops is an effective way to increase profit from your farm, and sometimes the cover crop itself can offer a farm product which you can sell.

However, the main benefit of continued use of cover crops will be realized in the cash crop that follows the cover crop. This is due to the accumulation of nutrients the cover crop has moved up from lower in the soil profile to the surface layer of soil, which is now available to your next cash crop. Other associated benefits are: suppressing weeds, nitrogen fixing, conserving energy use (less tractor work), conserving moisture, early spring flowers for pollinators, and adding organic matter to improve the soil increasing the vigor of plants.

Legumes are the nitrogen concentrators. The field peas, alfalfa, vetch and clovers will fix nitrogen from the air by the nodules on the roots. When the above ground portion of the plant is chopped down and begins to decompose, the nitrogen is released into the ground. When planting legumes, you should use an inoculant (available commercially) that will help the seedlings form lots of nodules.

Grasses are the biomass or organic matter builders. Winter Rye, Sudan grass, ryegrass and millet are all grasses that will produce tons of biomass as they are chopped, crimped or rolled down and begin to decompose. Long-term research has documented that fields planted in one of these grasses could show a two percent increase or more of organic matter. This can have profit benefits down the line.

Brassicas used as a cover crop are known as bio-fumigants (a method of destroying pests). Mustards are most commonly used as bio-fumigants against nematode and soil fungi problems. When bio-fumigating, the cover crop is chopped and immediately incorporated into



Hairy Vetch cover crop growing over 2 feet tall. (Photo courtesy of University of Missouri.)

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Down to Earth: Reports from the field

In the Spotlight: Leroy Booker By Jim Pierce

Leroy Booker grew up on a typical urban lot in Kansas City. One of his early memories of raising food was seeing his dad tend a tomato patch out back and thinking, "That's not for me." Time has a way of changing a fellow's perspective. After a number of years, he found himself thinking about those tomatoes in his father's backyard, and he had fond memories of the neighborhood women boasting who made the best greens. He soon realized he wanted to learn how to raise the healthy food he remembered from his youth. He decided to buy a piece of land and wanted to do two things with it. First, he would learn how to grow his own food, and second, he would grow enough food to share and sell.

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Leroy Booker planting grapes on his farm.

THE IPM CORNER: **Community Gardens: Policy, Planning and Management**

By Dr. Jaime Piñero, Assistant Professor/State IPM Extension Specialist



St. Paul Santa Fe Community Garden at Victor and Benton Blvd., Kansas City, Missouri.

As many of us know, community gardens promote healthy communities and provide food security for many low-income people. In an urban setting, community gardens are part of the open space network. The gardens, and those who participate in community gardening, contribute to the preservation of open

space, provide access to it and create uses for the space. Community gardens strengthen community bonds, provide food and create recreational and healing opportunities for a community. They can also promote environmental awareness and provide community education.

Public community garden programs are generally administered by the community development or parks department. Other gardening programs involve public and private schools and other institutions. Some areas are changing policies to encourage residents to plant vegetables and other edible foods and allow a limited number of farm animals, such as chickens, in the city. An example of policies and procedures can be found in the Community Gardens Handbook of the City of Eugene, Oregon. You can access it at <http://www.eugene-or.gov>. Then, type “community gardens hand-

book” in the search box to get a PDF version of the handbook.

Integrated Pest Management (IPM) can also be practiced in community gardens. As an example, community gardens in the City of Eugene, Oregon, are designated within the IPM policy of the Parks and Open Space Division as “no pesticide zones.” No registered pesticides can be used within a community garden or within 25 feet of the outside perimeter of community garden sites, according to this designation. The goal of the city’s Community Gardens Program, with respect to IPM, is to provide space for and facilitate the production of vegetables, flowers or other desirable crops within a manageable and well-maintained area, and to foster the responsible stewardship of shared community garden spaces for a long time. Emphasis is placed first on the prevention of pests. Subsequent, *(continued on page 3)*

Leroy Booker . . . (continued from page 1)

Leroy’s journey started in 2011, when he borrowed a tiller and bought some seeds at a local farm store. After tilling a plot of sod, he planted seeds of mustard, turnips, collard greens, onions, tomatoes, several herbs, asparagus, sweet potato and strawberry plants. That first year was somewhat disappointing in yield. As the plants struggled along, Leroy paid attention to what was happening in the garden. He went looking for information and other small farmers in order to learn from them, too. He began by attending the Beginning Organic Production Systems Workshop and acquired a deeper understanding of the concepts of growing crops. The farm visit, as part of the workshop, was inspiring, too. As a result of the workshop, he realized how much there was to learn and came to the conclusion he would grow slowly as he gained more knowledge and experience and developed his growing skills. As a part of speeding up his learning, he has been researching sustainable growing methods and alternative crops and visiting with other small farmers.

Leroy’s land had been neglected and is heavy with clay. In his second year, he began incorporating the principles he learned about sustainability. Leroy started his by plowing down the sod made of red clover, Brown-Eyed Susans and annual/perennial grasses. He then divided the plot up between a

vineyard project and vegetable garden.

The first step for Leroy was to build raised beds using salvaged concrete blocks for borders. He then filled them with his own mixture of rotted zoo manure, sand and soil. These beds are then used for small-scale production of a variety of greens and vegetables. The marketing for his second year has been to friends and family. His next step was meeting with a local chef to discuss what vegetables were used and hard to find. This has led Leroy to test several new crops that he has identified which his market needs.

His next step was to install a perennial fruit-grapes. He laid out the vineyard and planted the dormant plants in March. The aisles between the rows of grapes will be a cover crop mix of native plants and grasses. Leroy’s intent is that the aisle crops will add to the soil organic matter and microbe health and contribute nutrients to the grape plants. His small vineyard is off to a good start, and he is excited about the future.

In pursuing his dreams, Leroy has found out just how much he enjoys the outdoors and the processes of growing food. In educating himself, he has begun building a network made up of other farmers and a broad base of friends, while deepening his understanding of the importance of food, personal and societal health.



Leroy building his new raised beds using cinder blocks.

IPM Community Gardens . . . (continued from page 2)

combined management strategies will rely heavily on cultural practices for management of pests and may also include one or more physical (mechanical or manual) strategies. Materials other than registered pesticides may also be used when action items have been reached as elements of an integrated approach. The policy and manual on IPM for the city's Parks and Open Space Division can be found here: <http://www.eugene-or.gov>. Then, type "IPM policy" in the search box to get a PDF version of the IPM Policy and Operations Manual.

As you will see, IPM is the official policy for pest management in all public areas of the City of Eugene, Oregon, including, but not limited to, prairies and savannas, forests and woodlands, waterways, vacant lands, landscape beds, medians and other right-of-way plantings, community gardens, playgrounds, etc. Under this IPM policy, the Parks and Open Space Division commits to implementing an IPM program that incorporates the **five fundamental principles of IPM (as taken directly from the manual)**:

1. Set action thresholds. Before taking any pest control action, first set an action threshold, a point at which pest populations or environmental conditions indicate that pest control action may be taken. Sighting a single insect pest does not necessarily mean control is needed. The threshold level is critical to

Did you know that the University of Missouri Extension published a Community Garden Toolkit? This is an excellent resource for gardeners, garden organizers, Extension staff, and other agency professionals who want to start a new community garden, enhance an existing garden, or help community members start and manage their own community garden.

<http://extension.missouri.edu/explorepdf/miscpubs/mp0906.pdf>

guide future pest control decisions.

- 2. Monitor and identify pests.** Perform these tasks accurately, so that appropriate control decisions can be made in conjunction with action thresholds. This monitoring and identification reduces the possibility of implementing control methods when they are not really needed or that the wrong kind of method will be used.
- 3. Prevent.** As a first line of pest control, work to manage the garden to prevent pests from becoming a threat. For example, using mulch in planting beds to suppress weeds, planting desired plants at densities that preclude weeds, selecting pest-resistant varieties, proper site preparation prior to development, and planting pest-free rootstock are examples of prevention techniques. These control methods can be very effective and present little to no risk for people or the environment. Prevention may also include managing weeds at small population densities before the weed becomes

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Cover Crops . . . (continued from page 1)

the soil for best results. Chopping or mowing should be just prior to bloom.

Planting cover crops is a matter of purpose and need. Are you rotating in a cover crop to prevent weeds in a fallow field, scavenging nitrogen or building biomass and good bacteria? Plant in spring, mow it when it begins to flower, and plow under in the fall; plant in the late summer or early fall, over winter, then crimp or roll the cover crop to kill it in spring and plant through the thick mat of decomposing vegetation.

Late summer is a good time to start thinking about what cover crops you will want to plant in your fields in the fall. For example, a mix of cereal rye and Austrian winter peas (legume) planted in late October will be able to start establishing themselves and create a living cover that will protect your field through the winter, while also doing all the things mentioned in this article. Then in the spring, the cover crop can be managed in whatever way works best for you. If you are fortunate enough to have access to a roller/

crimper and a no-till drill, this is an excellent tool to manage the cover crop. Rodale Institute has been working on perfecting this technique for many years. If you do not have access to this equipment, cutting the cover crop down and incorporating it into the soil with a tiller or other methods can also work.

With cover crops, timing is very important. Planting too late in the fall can result in poor growth, thus a weak cover crop. Your specific weather, climate zone, soil type, farming techniques and skills will play important roles in choosing when to

plant and what cover crop to plant. Research the possibilities and find the cover crop that suits your farm and climate. The profit in the soil will pay off.

An excellent resource to learn more about cover crop is the Midwest Cover Crop Council webpage (<http://www.mccc.msu.edu/>) or the #9 SARE Handbook "Managing Cover Crops Profitably." You can download the book for free or order it for \$19.00 from the website www.sare.com.

The following are suggestions of what to plant in Missouri:

| | |
|---|---|
| Crimson Clover | N source, soil builder, erosion fighter, weed fighter, good grazing, harvest value in forage & seed, cash crop interseed, winter annual, summer annual |
| Rye | soil builder, erosion fighter, weed fighter, pest fighter, N scavenger, quick growth, lasting residue, duration, cash crop interseed, tolerates triazine herbicides, cool season annual |
| Green Manure Mix: winter rye, field peas, ryegrass, crimson clover and hairy vetch. | winter-kill of peas, clover, ryegrass provides organic matter, & soil cover, hairy vetch & winter rye will regrow in spring for crop nutrients, plus qualities of individual plants |

ISFOP

If you are a small farmer and need information, please contact an ISFOP Farm Outreach Worker (FOW). FOWs live and work in your community. They can provide information on ways to better manage your resources, reduce expense and increase income. They can also provide information on other programs and resources that may increase your income and the overall quality of life for you and your family.

You are eligible to participate if:

- Your family lives on a farm, rural or urban.
- Farm products or income from the farm are necessary for you to live where you do.
- Your family provides the management and most of the labor for your farm.
- Your total annual family income is less than \$50,000.

How to Contact West Central Regional ISFOP Farm Outreach Workers:

- **Katie Nixon**, West Central Regional Coordinator and Jackson County
NixonK@LincolnU.edu
(816) 809-5074
- **Jeff Yearington**, Cass and Johnson Counties
YearingtonJ@LincolnU.edu
(816) 899-2181
- **Susan Jaster**, Lafayette and Ray Counties
JasterS@LincolnU.edu
(816) 589-4725
- **Jim Pierce**, Clay and Platte Counties
PierceJ@LincolnU.edu
(660) 232-1096

For general information call the LUCE ISFOP office at (573) 681-5312.



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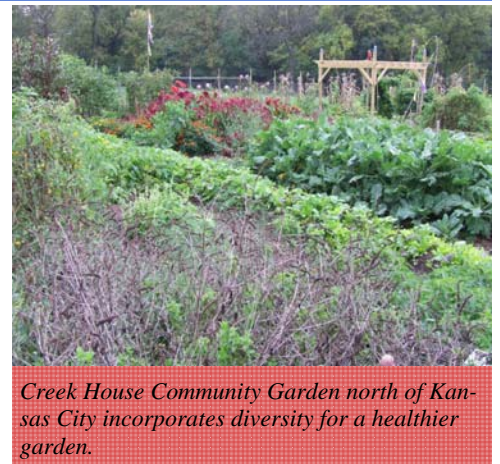
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IPM Community Gardens. . . (continued from page 3)

established, thereby reducing the input of resources. Catching a weed population while it is small is a way of preventing a larger problem in the future. For example, a single purple loosestrife plant along the river can produce over a million seeds. For this reason, controlling invasive plants at low densities may be identified as a prevention tool. Trap crops can also be effective in managing insect pests of vegetables, as discussed in a previous issue of this newsletter.

4. **Control, only if needed!** Once monitoring, identification, and action thresholds indicate that pest control is desired (or even better, required), and preventive methods are no longer effective or available, the next step is to evaluate the proper control method, both for effectiveness and risk. Effective, low-risk pest controls are chosen first, including mechanical controls, such as mowing, weeding or trapping. If past experience, further monitoring, identification, and/or action thresholds indicate that low risk controls may not be effective, alternate pest control methods may be employed, such as biological controls or targeted spraying of pesticides. Broadcast spraying of non-specific pesticides is usually a last resort. Chemical control methods will utilize the least toxic and most effective chemicals and adjuvants available.
5. **Evaluate the effects and efficacy of control treatments.** After a control method is implemented, the efficacy of the treatment is evaluated. Based on this evaluation, methods will be modified in an effort to continually improve outcomes and refine best management practices (BMPs).



Creek House Community Garden north of Kansas City incorporates diversity for a healthier garden.

Small Farmer Workshop Series Registering Participants: The Innovative Small Farmer's Outreach Program, in collaboration with Alianzas, The Mattie Rhodes Center and the MU Extension, has created an opportunity for those interested in starting a new farming enterprise, with an emphasis on Hispanic and limited resource growers. The program consists of five workshops, three of which will be on farm production and two will be on business development and marketing. The workshops, to be held on small farms that typify the production topic, for example, the small fruits workshop will be held on a blackberry/blueberry farm and a small vineyard. The business development workshops will be held at The Mattie Rhodes Center. Information will be presented by the farmers and Extension educators with the help of translators. Attendance includes a scholarship to attend the two-day Great Plains Growers Conference in St. Joseph, Missouri, with transportation provided. The conference is a great opportunity to learn from growers from Missouri, Kansas, Iowa, Nebraska and South Dakota. New for the Great Plains Growers Conference this year will be several sessions in Spanish for the Hispanic grower. To apply, please contact Jim Pierce at (660) 232-1096 or si habla Espanola contacto Erika Noguera (816) 235-1768.