

PEST MANAGEMENT (CSP Enhancements)

February 2006

Enhancement Activity Job Sheet

AL-CSP-EPM-JS



Photo courtesy of NRCS

Enhancement Activities

Enhancements activities refer to actions that provide resource benefits beyond the level prescribed by NRCS Conservation Practice Standards. Once implemented Enhancement Activities should result in an observable or measurable improvement to the condition of one or more of the soil, water, air, plant or animal resources, or provide for more efficient resource utilization and/or energy conservation.

Enhancement Activity Benefits

Enhancement activities associated with Pest Management such as scouting crops for pests, using crop rotation, using pest resistant crop varieties, widening buffers, using additional mitigation activities, and using precision application techniques can result in the following benefits to the producer and the environment:

- Reduced risks to beneficial insects (e.g., honeybees, parasitic wasps, lady beetles, etc.)
- Reduced risks to ground and surface water quality

- Lower costs by limiting chemical applications to only when necessary

CSP Payments

You can earn payments by participating in any of the following activities:

- Manage pest problems and reduce pesticide use by scouting crops for pests.
- Minimize pest problems by using two crop types in rotation in addition to using cover crops.
- Manage the pesticide usage by implementing pest avoidance techniques using pest resistant varieties, trap crops, etc.
- Reduce pesticide movement into water courses by widening buffers (grassed field borders, filter strips, or riparian forest buffers) 50 to 100% of minimum design widths.
- Reduce negative impacts of pesticides by applying at least four additional mitigation or conservation practices.
- Reduce pesticide spray overlap through the use precision agriculture technology.

CSP Enhancements earnings are subject to payment caps. Your actual payment will depend on your CSP Tier level and the number of acres enrolled.



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Client's Acknowledgement Statement:

I have elected to use the following Pest Management activities and understand the requirements of the selected activities:

- Manage pest problems and reduce pesticide use by scouting crops for pests.
- Minimize pest problems by using two crop types in rotation in addition to using cover crops.
- Manage the pesticide usage by implementing pest avoidance techniques using pest resistant varieties, trap crops, etc.
- Reduce pesticide movement into water courses by widening buffers (grassed field borders, filter strips, or riparian forest buffers) 50 to 100% of minimum design widths.
- Reduce negative impacts of pesticides by applying at least four additional mitigation or conservation practices.
- Reduce pesticide spray overlap through the use integrating Global Positioning Systems (GPS), Real Time Kinetics (RTK), laser technology, and computer guided spray nozzles to precisely and efficiently target spray to eliminate overspray.

I agree that the following information will be provided to NRCS upon request:

- Written documentation of the activity performed (use attached worksheets or equivalent).
- Copies of dated receipts for equipment or services purchased.

I understand that CSP Enhancements earnings are subject to payment caps and that my actual payments will depend on my CSP Tier level and the number of acres enrolled.

I understand that it is my responsibility to obtain all necessary permits and to comply with all ordinances and laws pertaining to the application of these activities.

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Worksheet 1 – Crop Scouting EPM10

Payment = \$5/Acre/ crop year for fields where scouting services were used to monitor crops for pests.

Manage pest problems and reduce pesticide use by scouting crops for pests. Regular scouting throughout production season of crops will be done to determine pest levels. Pests will be managed according to established thresholds and control techniques. Payments will be made at \$5 for every acre scouted and properly managed. Professional scouting services or professionally trained and certified scouts must be used to qualify for this payment. Follow the Pest Management 595 standard.

Use this (or similar) table to document where crop scouting is used.

Tract & Field #s	Acres	Crop Grown	Professional Scouting Service Used	Crop Year Used
T123 Field 4	200	Cotton	Alabama Agriculture Consulting Service	Example 2004

Attach receipts for scouting services, scout certifications and copies of scouting reports.

Crop Scouting Certification

I certify that I have used professional crop scouting services or trained scouts on the field(s) listed in the table above.

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Worksheet 2 - Crop Rotation EPM09

Payment = \$5/Acre/crop year for fields where crop rotation has been established to break pest cycles.

Minimize pest problems by managing the crop cycles, using two crop types in rotation in addition to using cover crops. An acceptable rotation would include: cotton, rye, and, corn. A rotation of cotton, rye, only is not acceptable. Payments will be made at \$5 for every acre included in the desired rotation. Follow the Conservation Crop Rotation standard 328.

Use this (or similar) table to document planned crop rotation.

Tract & Field #s or Names	Acres	Planned Rotation Sequence						
		1	2	3	4	5	6	7
T111 - 3,4,5	600	Cotton	Rye Cover	Corn	Rye Cover	Cotton	Rye Cover	Corn

Crop Rotation Certification

I certify that I have used a crop rotation system on the field(s) listed in the table above.



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Worksheet 3 - Use Pest Avoidance Techniques such as Pest Resistant Varieties or Trap Crops EPM12

Payment = \$5/Acre/crop year for fields where pest avoidance techniques such as pest resistant varieties or trap crops are used.

Manage the pesticide usage by implementing pest avoidance techniques using pest resistant varieties, trap crops, etc. There are numerous transgenic crop varieties available to the producers. Those plants that offer protection against insects and diseases should be grown. Some crop plantings serve as trap crops to attract damaging insects and will result in reduced insecticide use. Payments will be made at \$5 for every acre planted and properly managed. Follow the Pest Management 595 standard.

Use this (or similar) table to document the location, acres, crop, target pest, and control method used.

Crop Grown	Tract & Field #s	Acres	Target Pest	Control Method Used	Date
Cotton	T123 Field 2	80	Budworms Bollworms	Bollgard Cotton Variet <i>Example</i>	04
Soybeans	T123 Field 3	80	Grasses & Broadleaf Weeds	Planted Roundup Ready Variety	04

Attach receipts for seed.

Pest Avoidance Technique Certification

I certify that I have used pest resistant varieties or trap crops on the field(s) listed in the table above.



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Worksheet 4 – Widen Field Borders, Filter Strips, or Riparian Forest Buffers EPM11

Payment = \$50/Acre/year for every acre of field border, filter strip, or riparian forest buffer widened to 50% to 100% of minimum NRCS design width. Payment is for widened area only.

Reduce pesticide movement into water courses by widening buffers (grassed field borders, filter strips, or riparian forest buffers) 50 to 100% of minimum design widths. Payments will be made for the widened acres of these buffers. The areas will be established to permanent grass or trees and managed as described in the appropriate practice standard. Refer to the practice standards: Field Border 386, Filter Strip 393, Riparian Forest Buffer 391.

Use this (or similar) table to document location, acres, and widths of buffers.

Tract & Field #s	Buffer Practice	Normal design width	Enhanced design width	Total acres
T123 Field 2	Riparian Forest Buffer	35'	50'	2

Example

Attach receipts for seed, fertilizer, and other establishment costs.

Widened Buffers Certification

I certify that I have widened buffers on the field(s) listed in the table above.

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Worksheet 5 – Use of Additional Mitigations and/or Conservation Practices EPM03

Payment = \$5/Acre/crop year for fields where a combination of at least four mitigations and/or conservation practices are applied in addition to those needed to meet minimum water quality eligibility.

Application of this enhancement will support the extra efforts some producers are making to minimize the risk that pesticides have on the environment. To receive credit and payment for this enhancement the producer agrees to implement at least 4 of the below mitigations, whether management or conservation practice. The producer agrees that the mitigations will be applied for all applicable situations on the selected acreage and as agreed upon by the conservation planner and producer. A particular mitigation may not have to be used for all selected acres. However, at least four mitigations will be used in the offered crop, hay or pasture fields. Producer agrees to provide proper documentation to support the implementation of each mitigation.

Possible Mitigations

Management:

- C **Partial Substitution:** Use pesticides of lower environmental risk than historical pesticides used by the producer unless there are no other options available.
- C **Partial Treatment:** Spot treat, band or use directed sprays to reduce the amount of pesticide needed.
- C **Pesticide Formulation/Adjuvants:** Use less soluble pesticide formulations or appropriate adjuvants to minimize movement pesticide movement from the target site.
- C **Setbacks:** Use setbacks that are at least 50% more than the label requirements to limit potential exposure of environmentally sensitive areas to pesticides.
- C **Biological Control:** Apply pesticides that are biological in nature instead of chemical in nature.
- C **Mechanical Control:** Control weeds or other plants using mechanical control methods such as cultivation, roller-chopping or mowing instead of applying pesticides.
- C **Record keeping:** Conduct follow-up evaluations to determine success of the pesticide application whether the targets are insects, weeds, or otherwise. Use results to determine future use of pesticides which includes rates, timing, targets, products, alternatives, etc. Records must be kept to document results and decision-making. Follow-up evaluations are different than common Integrated Pest Management scouting reports. They should show more detail and may need to be done at various intervals following a pesticide treatment. For example: Weed control, by species, could be documented for 7, 14, 28 and 56 days after treatment.

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- C **Conservation Crop Rotation (328):** Crop rotation will be done to exceed minimum requirements for CSP. A minimum of three crops, excluding cover crops, will be used in the rotation. Example: corn, rye and clover, cotton, rye, soybean, wheat,. The crops will be selected on its ability to help break targeted pest cycles. Resistant varieties will be used where possible.
- C **Contour Farming (330):** Farm on contour according to this conservation practice to reduce pesticides from leaving treatment areas and entering environmentally sensitive areas.
- C **Forage Harvest Management (511):** Use this practice to help control weeds and enhance growth of desirable forages minimizing the need for pesticides.
- C **Irrigation Water Management (449):** Apply low volumes of water and time application to reduce surface water and pesticide runoff according to this standard.
- C **Irrigation System, Micro irrigation (441):** Use micro-irrigation to reduce amount of pesticides needed according to this standard.
- C **Prescribed Grazing (528):** Use high intensity prescribed grazing to promote desirable forage growth, persistence and competition with weeds while removing undesirable plants through grazing. High intensity grazing will include grazing systems that have at least 8 paddocks per functional group, animals graze each paddock about 3 – 5 days and each paddock rests at least 85% of the grazing cycle.
- C **Riparian Forest Buffer (391):** Establish a riparian forest buffer to reduce pesticide impacts to surface and ground water.
- C **Residue Management (329A, 329B):** Leave at least 75% residue on the cropland surface after planting.
- C **Wetland Creation (658):** Create wetlands so that it captures pesticides residues and facilitates their degradation.
- C **Wetland Restoration (657):** Restore converted wetlands so that they capture pesticide residues and facilitate their degradation.

Follow the Pest Management 595 standard.



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I certify that I have applied these additional mitigations and conservation practices on the field(s) listed in the table above.

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Name:

Worksheet 6 – USING GPS OR OTHER SIMILAR GUIDED MEASURE TECHNOLOGY TO REDUCE PESTICIDE SPRAY OVERLAP EPM40

Payment = \$8/Acre/crop year for fields where Global Positioning Systems (GPS), Real Time Kinetics (RTK), laser technology, and computer guided spray nozzles are used to precisely and efficiently target spray to eliminate overspray.

For 2005, the Conservation Security Program (CSP) offers a new enhancement activity opportunity to reward or encourage the improvement in water quality by reducing pesticide spray overlap through the use integrating Global Positioning Systems (GPS), Real Time Kinetics (RTK), laser technology, and computer guided spray nozzles to precisely and efficiently target spray to eliminate overspray. This enhancement is available once the applicant qualifies for CSP by meeting the program's entry requirements for soil and water quality.

The following information will help landowners and managers determine if they are eligible for the offered payment(s) for this water quality enhancement activity.

REDUCING PESTICIDE SPRAY OVERLAP THROUGH TECHNOLOGY

In 2001 USDA's pesticide survey indicated that 511 million pound of pesticides, herbicides, insecticides, fungicides, and other pesticides, were applied to crops. Corn accounts for 37 percent of all pesticide use and 58 percent of herbicide use. Cotton accounts for nearly half of the total insecticide use. Application of pesticides by sprayers using tractors without steering guidance systems result in as much as 24 inches in overlap to ensure full coverage. Reducing the sprayer overlap has the potential to reduce not only pesticides potentially entering the ground and surface water supplies it has the potential to reduce farm production costs. Leading edge technologies can reduce overspray.

About 250,000,000 acres in the US are planted to corn, sorghum, oats, barley, wheat, rice, soybeans, and upland cotton each year. These crops represent 77 percent of the total US cropland acreage. Pesticide costs per acre for these crops average about \$27.50 in 2005 dollars. National Agricultural Statistical Service data indicates that in 2002 the total costs of pesticides used in agricultural production was \$8.2 billion.

If an overspray of 24 inches is assumed for each pass of the sprayer and if the sprayer boom is assumed to be 40 feet wide, nearly 2,300 square feet of each acre is subject to multiple applications of chemicals. This amount to about 5 percent of each acre and on a national basis amounts to approximately 12,500,000 acres of cropland with overlap spraying.



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If all overspray was eliminated, pesticide use could be potentially reduced by an estimated 25 million pounds per year at a savings to farmers of over \$400 million. For every inch overlap is reduced the reduction in pesticides applied would decrease by 820,000 pounds and save farmers \$13,700,000.

USING GPS OR OTHER SIMILAR GUIDED MEASURE TECHNOLOGY TO REDUCE PESTICIDE SPRAY OVERLAP

Traditional methods of pesticide application are being replaced by integrating Global Positioning Systems (GPS), Real Time Kinetics (RTK), laser technology, and computer guided spray nozzles to precisely and efficiently target spray to eliminate overspray.

Light bar technology helps equipment operators to steer more precise paths that reduce overspray. GPS auto guidance systems take over steering completely except for the end of the row. There are two types of GPS auto guidance systems. Differential corrected GPS (DGPS) reduces the overspray to about 4 inches. RTK GPS is accurate to sub-centimeter accuracy and is used in commercial survey work. It has been adapted to agricultural use. Its use reduces overspray to less than 1 inch (essentially zero overspray). A base unit provides the reference point that the computer and laser equipment use to establish a position in the field.

Startup costs for a DGPS are about \$10,000 and about \$60,000 for a RTK GPS. Typically, these costs can be recouped in two years on a 2,000 acre farm.

Lower technology approaches such as row markers, chalk lines, or other means off guiding equipment accurately through the field can be a substitute.

Documentation Required: A description of the system of reducing overlap, including fields being applied to and equipment being used.

Use this (or similar) table to document where Precision Ag techniques are used.

Tract & Field #s	Acres	Crop Grown	Type of System and Components Used	Crop Year Used
T123 Field 4	180 ^{Example}	Corn	GPS	2005

Attach receipts for precision ag equipment or services.

REDUCING PESTICIDE SPRAY OVERLAP THROUGH TECHNOLOGY CERTIFICATION



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I certify that I have applied the precision agriculture technology on the field(s) listed in the table above.

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