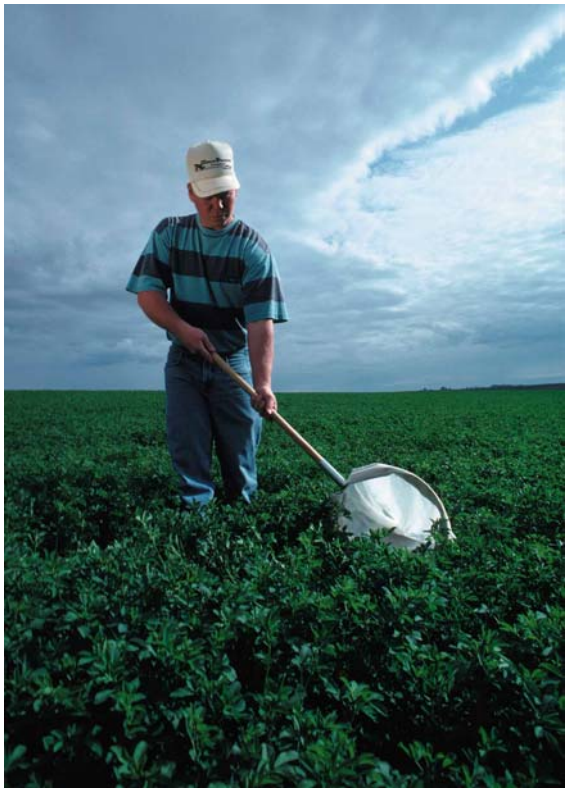
United States Department of Agriculture

NRCS Natural Resources Conservation Service

Pest Management (595) – High Intensity IPM

Conservation Practice Job Sheet **ID- 595, JS- 11**

Natural Resources Conservation Service - Idaho **October 2007**



What is Pest Management?

Pest management is defined as "utilizing environmentally sensitive prevention, avoidance, monitoring, and suppression strategies, to manage weeds, insects, diseases, animals and other organisms that directly or indirectly cause damage or annoyance." Effective pest management relies on the use of many tools or strategies to reduce the impacts of pests on crops in order to meet landowner objectives.

Purpose

Pest management is applied as part of a resource management system to support one or more of the following purposes:

- Enhance quantity and quality of crops and forages grown for food and fiber.
- Minimize negative impacts of pest control on soil resources, water resources, air resources, plant resources, animal resources, and/or humans.

Integrated Pest Management - IPM

Agricultural pesticides are potential pollution threats to surface and groundwater quality. Integrated pest management (IPM) can help protect water quality by minimizing the amounts of pesticides that producers use and by helping producers to apply pesticides in ways that decrease the risk of chemicals washing off fields into lakes and rivers or leaching into groundwater. This High Intensity IPM practice provides an opportunity for the producer to develop multiple management strategies that will integrate all aspects of pest management within the agricultural production system – this is called Integrated Pest Management, or IPM.

The IPM philosophy of pest management involves three fundamental steps:

1. Use cultural methods, biological controls, and other alternatives to conventional chemical pesticides when practical.
2. Use field scouting, pest forecasting, and economic thresholds to ensure that pesticides are only used against real and not perceived pest problems.
3. Match pesticides with field site features so that the risk of contaminating water is minimized. Substitute lower risk pesticides when feasible, and alternate the use of pesticides from different chemical classes.

Practice Specifications

This practice applies to cropland and hayland. Producers eligible for this practice have an identified water quality or plant condition concern, and must meet all criteria in the Pest Management (595) Standard. This includes an environmental risk analysis, and implementation of mitigating practices if an Intermediate or greater hazard is identified. Recommended mitigating or companion practices include grassed waterways, filter strips, riparian buffers, irrigation water management, residue management, or other appropriate practices to fully address the water quality concerns. Development and implementation of an IPM plan for the major pest(s) of concern is required.

Non-Chemical Alternatives

Over-reliance on any single pest control measure can have undesirable effects. Pesticides can contribute to pest outbreaks by eliminating natural enemies and allowing pests to rebound without checks. Cultural methods are those good farming practices that make the environment less suitable for pest colonization and survival. Biological control involves using predatory, parasitic, and disease-causing organisms for insect pest control as well as using competitive or antagonistic organisms for weed suppression. It also includes conservation of naturally occurring beneficial insects.

The goal of IPM is to take maximum advantage of farming practices that promote plant health (e.g., nutrient and irrigation water management) and allow crops to escape or tolerate pest injury, and to enhance the impact of beneficial insects and other natural controls already present. This minimizes the need for chemical pesticides to control pests. An IPM plan will be developed by a Certified Crop Advisor (CCA), and will include biological and/or cultural/mechanical practices to prevent, avoid, or suppress pests. At least three of these alternative strategies are required. These alternatives must be based on Univeristy of Idaho crop-pest specific recommendations or other science-based information sources.

Scouting

A crucial component in any IPM program is to identify the pest. The effectiveness of both proactive and reactive pest management measures depend on correct identification. For this reason, a Certified Crop Advisor (CCA) must perform pest scouting. Proper monitoring (scouting) can determine pest population levels and locations within the field. Information has been developed by the University of Idaho for major pests to help determine when pest levels reach a point where they should be suppressed. This is called the Economic Threshold, and is the point where the cost to control the pest equals the crop damage caused by the pest. Controlling a pest prior to this level is therefore usually not cost effective.

Field scouting, pest forecasting, and economic thresholds will be described in the IPM plan to ensure that pesticides are only used against real (not perceived) pest problems. Descriptions of pest damage and economic thresholds can be found in the Pacific Northwest Insect Management Handbook (http://pnwpest.org/pnw/insects) or on the University of Idaho Pest Management website (http://www.ag.uidaho.edu/pmc/Pests/cropPests.htm) .

On dry cropland and irrigated or non-irrigated hayland, frequency of field scouting will be based on pest biology. On irrigated cropland, scouting shall be conducted on a weekly basis and include all relevant crop stages.

Field scouting uses different techniques to classify the status of a pest population for decision-making purposes. Field scouting procedures are available for many of the major pests in Idaho. If no specific guidance is available, field sampling should be done randomly, with samples taken from across the entire field. Take at least 5 samples and preferably 25 – 30 samples per field. Sweep nets, sticky traps, and pheromone traps can be used. Leaf counts are one method for recording plant growth stages. Square-foot or larger grids laid out in a field can provide a basis for comparative weed counts.

Pest forecasting uses information or data to predict pest problems early. For example, records of rainfall and temperature are sometimes used to predict the likelihood of disease infections. Regional pest monitoring systems can complement scouting. Idaho's BEACON program and the PNW Pest Alert system provide current information on certain pest problems in the region. In addition, models have been developed, like the degree-day approach, which can help determine when scouting should begin, or when pesticide application will have the maximum control.

For major insect pests in Idaho, guidelines have been developed that help identify when pesticide use is, *and is not*, necessary. Scouting reports must be kept, along with the management decision based on the individual scouting report. Decisions to suppress a pest need to be based on economic thresholds, when available, from the University of Idaho Pest

Management website, or other science-based source. If no threshold is available, then the basis for the decision to suppress should be included. For example, “Past experience indicates that insect damage beyond this point will lead to significant crop yield loss.” All decisions made to use a pesticide to suppress an insect pest must be made on the basis of a scouting report. Where feasible, use lower risk or “Reduced Risk” pesticides or reduce use of pesticides through spot spraying, seed treatments, etc.

Recordkeeping

Records are an important tool to track pest populations over time, and can document reduction in pesticide use. An IPM plan must be developed and be provided to NRCS. Non-chemical pest management practices must be recorded. Documentation shall include target pest, method or technique used, date and/or crop stage when used.

All pesticide use must be recorded. Documentation shall include product name or active ingredient, application location (field identification), target pest, application rate, application timing, and extent of application (entire field vs. spot treatment, for example). Mapping infestations over time is a good way document scouting activities, and may help in predicting pest populations in future years.

The attached worksheets will document scouting and management decisions, and pesticide use. The producer may use blank copies of the worksheets to keep annual records, or may use any format for record keeping that provides the required information. In addition, the NRCS *Idaho Checklist/Guidance for Integrated Pest Management (*http://www.id.nrcs.usda.gov/technical/guidance_ipm.html) can be used to assist in the development of an IPM plan.

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CLIENT'S ACKNOWLEDGEMENT STATEMENT

The Client acknowledges that:

a. The development and implementation of an IPM plan for the major pest(s) of concern is required. At least three non-chemical strategies must be used. A Certified Crop Advisor (CCA) must develop the plan and perform pest scouting. On irrigated cropland, pest scouting will be done on a weekly basis.

b. The producer must keep scouting reports, along with the management decision based on the individual scouting report. Decisions to suppress a pest need to be based on economic thresholds, when available, from the University of Idaho, or other science-based source.

c. The producer must keep annual records of all pesticides applied, as well as records of non-chemical pest management practices.

d. The producer has received a copy of this practice specification and understands the contents and requirements.

Accepted by:/s/_____ Date:_____

SCOUTING REPORT

Producer_____ Date _____ Time _____ am/pm

Field ID _____ County _____ Scout_____

PLANT POPULATION Set Counts Total Plants/Acre

Plants per 1/1000 of an acre* | | | | | | | | | | | _____ ÷ # Set x 1,000 _____

36“ row width = 14’ 6” length of row, 30” = 17’ 5”, 20” = 26’ 2”, 15” = 34’ 10”, 10” = 52’ 3”, 7” = 74’ 8”

INSECTS	Plants/Set	Set Counts										Total	%	# per Plant
	/set													
	/set													
	/set													
	/set													
	/set													
WEEDS												**SOIL CONDITIONS**		
Grasses (Scattered, Slight, Moderate, Severe)												Wet Moist Dry		
_____ SC SL MD SV		Avg. height _____										Loose Light Crust Hard Crust		
_____ SC SL MD SV		Avg. height _____										**WEATHER**		
Broadleaves												Cool Warm Hot		
_____ SC SL MD SV		Avg. height _____										Partly Sunny Cloudy Rainy		
_____ SC SL MD SV		Avg. height _____										Calm Light Wind Strong Wind		

DISEASES (Rating 1, 2, 3, 4 or 5)

_____ _____

_____ _____

CROP GROWTH STAGE _____

Comments:

MGT. DECISION BASED ON SCOUTING REPORT:

Map (or attach map)

NOTE: COMPLETION OF SHADED AREAS IS OPTIONAL.

PESTICIDE DATA COLLECTION SHEET

Crop	Target Pest	Product Name or Active Ingredient (AI)	% AI	Broadcast or Banded	Application: Surface, Foliar, or Soil Incorporated	Rate Used