



CONSERVATION ENHANCEMENT ACTIVITY E595B (WITH MONTANA SUPPLEMENT)

CONSERVATION STEWARDSHIP PROGRAM

Reduce risk of pesticides in surface water and air by utilizing IPM PAMS techniques

Conservation Practice: 595 Integrated Pest Management

APPLICABLE LAND USE: Crop (annual & mixed), Crop (perennial), Pasture

RESOURCE CONCERN: Water, Air

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Utilize integrated pest management (IPM) prevent, avoidance, monitoring, and suppression (PAMS) techniques to reduce risk of pesticides in water and air. Reduce the potential for delivery of chemicals into water or ozone precursor emissions.

Criteria

- Documentation of producer's record of how integrated pest management is meeting all general criteria within the Integrated Pest Management Conservation Practice Standard (CPS 595).
- Utilize *at least four additional activities from techniques below*. The four or more activities can come from one or all of the PAMS activities identified below:
 - Prevention activities include cleaning equipment and gear when leaving an infested area, using pest-free seeds and transplants, and irrigation scheduling to limit situations that are conducive to disease development.
 - For pasture, activities could include: longer rotation periods, higher stop grazing heights, identify quarantine or exclusion zones if pests are present, and utilize weed free hay. Utilize forage species or varieties with generic resistance to anticipated insects or diseases.

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- Avoidance activities include maintaining healthy and diverse plant communities, using pest resistant varieties, crop and livestock rotation, and refuge management. Maintain populations of beneficial species to limit development of weed and insect infestations.
 - For pasture, activities include establishment of trap and/or cover crops to avoid pests' migration and invasion into healthy pasture lands. Utilize grazing practices that maintain vigorous forage growth that competes with weeds and able to withstand insects or diseases. Consider adding a diversity of forage species to dilute insect host plants and reduce opportunities for plant pest pressure.
- Monitoring activities include scouting for both pests and beneficial organisms, degree-day modeling, and weather forecasting to help target suppression strategies and avoid routine preventative treatments. Monitoring may include the use of drones, or other remote sensing tools which can provide color, red, or infrared images to help detect pest issues. Utilize weather models to help predict disease or insect outbreaks.
 - For pasture, use pasture condition score (PCS) and/or determining indicators of pasture health (DIPH) to assess and evaluate effects of invasive pests.
- Suppression activities include judicious use of cultural, mechanical, biological and chemical control methods that reduce or eliminate a pest population or its impacts while minimizing risks to non-target organisms. Optimizing application timing (plant phenology, weather and soil conditions etc.), using precision application equipment, or substituting lower risk pesticides.
 - For pasture, consider biological control activities, such as livestock grazing for targeted suppression and control of invasive plant species used in conjunction with other pest management activities. Consider utilizing the timing, duration, frequency and intensity of grazing to disrupt insect or disease cycles. Also consider other synthetic or biological agents (other than livestock) to manage weeds, insects and diseases.
 - When addressing air quality, include at least one suppression activity to reduce emissions of ozone precursors, such as choosing low-emission application methods, selecting alternatives, or avoiding use of emulsifiable concentrate (EC) formulations, use of precision application, solarization, biofumigants or adding adjuvants. Consider conditions/practices that reduce herbicide volatilization (in areas with low RH and high temps).



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- For areas with an active wheat stem sawfly (WSS) population, *utilize the following four* PAMS management practices together to reduce WSS while increasing beneficial parasitoid wasp populations. See [Agronomy Technical Note MT-95](#) *Wheat Stem Sawfly Best Management Practices* for more information.
 - Plant solid-stem wheat varieties for all wheat in the rotation.
 - Do not plant wheat, barley, or triticale in succession with itself or one another. Do not include wheat, barley, or triticale in cover crops or forage plantings.
 - Include oats (*Avena sativa*) at least once in each crop rotation cycle. Oats act as a natural attractant and trap crop for WSS, killing 100% of larvae arising from eggs laid within its stems. Time the planting of oats to provide sufficient vegetation during WSS flight and egg-laying activity, typically a 6-week time window time from late May to early July. Use one of the following methods to include oats in the crop rotation:
 - Oat grain crop
 - Oat trap crop planted around the perimeter of the wheat or barley crop. The oat trap crop should be a minimum width of one seeder pass around the field perimeter, or approximately 5% of the total field acreage. Plant the trap crop within 2 to 3 days of the wheat or barley crop and use the same crop season type for the trap crop as the attractant crop (e.g., spring oats with spring wheat).
 - Cover crop or forage crop with a minimum 15% oats as a portion of the total seed mix.
 - Increase beneficial habitat for parasitoid wasps with the following practices:
 - Harvest wheat and barley at no less than one-third of the total crop height.
 - Leave a minimum of 75% of the total wheat and barley residue on the soil surface.
 - Do not use inversion tillage within the rotation.
 - Do not burn, bale, or graze wheat or barley residue.
 - Avoid the use of pyrethroids, carbamates, or organophosphate insecticides.



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Documentation and Implementation Requirements

Participant will:

- ☐ Prior to implementation, provide documentation for review showing producer's record of integrated pest management meeting all Conservation Practice Standard Integrated Pest Management (CPS 595) general criteria.

Field	Acres	Planned Crops (in sequence)	Length of Crop Rotation (years)

Field	Crop	Field Operation	Timing of Field Operation (month/year)

- ☐ During implementation, keep documentation, such as records, plans, receipts, showing the implementation of the activities selected.
- ☐ After implementation, make documentation available for review by NRCS to verify implementation of the enhancement.

NRCS will:

- ☐ Prior to implementation, provide and explain NRCS Conservation Practice Standard Integrated Pest Management (CPS 595) as it relates to implementing this enhancement.
- ☐ As needed, provide technical assistance to the participant as requested.
- ☐ After implementation, verify implementation by reviewing records kept during enhancement implementation.



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- ☐ Evaluate environmental risk(s) using the [WIN-PST screening tool](#) for pesticides. See [Invasive Species Technical Note MT-37](#) *Montana WIN-PST Hazard Rating Quick Reference Guide for Commonly Used Herbicides on Non-Cropland* to determine when a WIN-PST analysis is NOT necessary.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____

Contract Number _____

Total Acres Applied _____

Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date