PPQ 2025 Annual Report

Optimizing Pest Management: Field Crop and Rangeland Ecosystem Pests

Table of Contents

Introduction

The Field Crop and Rangeland Ecosystem Pests (FCREP) program protects U.S. agricultural crops and rangelands from the establishment or spread of invasive or economically significant pests, facilitates safe international trade and domestic commerce, preserves economic opportunities for U.S. farmers, and fosters healthy ecosystems in rangelands and natural lands. To accomplish these goals, the U.S. Department of Agriculture's Plant Protection and Quarantine (PPQ) program provides national coordination, threat assessment, and strategies to prevent pests and diseases such as grasshoppers and Mormon crickets (GMC), imported fire ants (IFA), Karnal bunt, Roseau cane scale, and witchweed from spreading and impacting export markets for U.S. farmers. These programs help protect resources that small, rural communities depend on for income.

Grasshoppers and Mormon Crickets

PPQ cooperates with Federal, State, Tribal, and local agencies, organizations, and institutions to conduct survey and suppression activities in western States to reduce damage that GMC outbreaks cause, protecting rangeland resources that serve as forage for livestock, provide habitat for wildlife and ecosystem services, and provide recreation opportunities. A 2012 University of Wyoming study found that healthy rangeland provides forage value worth $6.7 billion and overall benefits ranging from $10.7 to $21.2 billion. Uncontrolled GMC infestations can cause significant economic losses for U.S. livestock producers by reducing animal food supply in rangeland, therefore forcing producers to buy supplemental feed or sell their livestock at reduced prices.

Besides feeding on grass, GMC can also devastate cultivated crops such as alfalfa, barley, corn, and wheat. Damage from GMC also reduces habitat and food sources for wildlife, which can threaten animal and plant biodiversity as well as soil erosion and degradation. Infestations often cover vast acreage, and landowners or land managers may need Federal support to control them. The program helps landowners and land managers by providing population information, helping to predict where grasshopper populations could develop into outbreaks, and providing technical assistance about options for dealing with problem-level populations. By providing information and advice to land managers and by conducting suppression treatments where necessary and possible, this program helps protect 661 million acres of rangeland across the western United States.

In fiscal year (FY) 2025, PPQ conducted surveys in 14 States for GMC, collecting data at 21,729 survey points. PPQ conducted treatments on 30,012 acres in three States (Arizona, Idaho, and Nevada) in FY 2025, using FCREP funding and reimbursements from participating landowners. The Plant Protection Act specifies that the Federal government covers 100 percent of treatment costs on Federal lands; 50 percent on State lands; and 33.3 percent on private lands. These treatments protected rangeland forage and wildlife habitat on more than 89,253 acres.

Before conducting any grasshopper treatments, PPQ confirms the species of the grasshopper as some do not cause damage to rangeland and others can even provide ecological benefits by eating weeds thereby leaving grasses for grazing livestock. At the State level, PPQ works with landowners and land managers, including the Bureau of Land Management, Tribes, ranchers, and local governments, to coordinate requested

treatments and to ensure treatments conform with established environmental standards to minimize impacts on non-target species.

Imported Fire Ants

IFA is a public nuisance and serious agricultural pest, causing damage to homeowners, agriculture, and natural ecosystems within the IFA Federal quarantine area. Currently, IFA infests more than 374 million acres in Puerto Rico and 13 States: Alabama, Arkansas, California, Florida, Georgia, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Virginia, all under partial or full State or Federal quarantine. APHIS provides regulatory guidelines to stakeholders for the treatment of regulated articles, oversight, and enforcement to help prevent the human-assisted spread of the pest. APHIS subject matter experts continue to work with university researchers and USDA's Agricultural Research Service (ARS) to develop new pesticide treatments to prevent IFA movement on nursery stock and to evaluate ways to optimize existing biological control agents for IFA control.

In FY 2025, APHIS removed the entire area of Doña Ana County, New Mexico, from the imported fire ant (*Solenopsis invicta* and *S. richteri*; IFA) quarantined area. APHIS removed this county based on three consecutive years of negative survey results in accordance with criteria listed in the "Guidelines for Deregulation" in the Imported Fire Ant Program Manual. Additionally, APHIS supported 21 cooperative agreements in infested and high-risk states and territories for inspecting nurseries, conducting delimiting surveys, and issuing compliance agreements. Partner states inspected nurseries, maintained ca. 3,139 compliance agreements, conducted blitz operations, and conducted delimitation surveys. APHIS facilitated a regular meeting series with the National Plant Board IFA committee and leading industry advocates AmericanHort®. The goal was to understand state partners' thoughts and potential needs regarding proposed regulatory changes to the Federal Imported Fire Ant Program.

Karnal Bunt

The FCREP program also addresses Karnal bunt, a fungal disease of wheat that was first detected in the U.S. in 1996. Many U.S. trading partners will not accept U.S. wheat unless it is certified to originate from areas where Karnal bunt is known not to occur. The program prevents the disease from entering the grain market system, spreading beyond the areas of Arizona where it is currently found (portions of 2 counties in the

State, accounting for 0.12 percent of wheat acreage in the United States).

In FY 2025, the program removed a total of 2,859 field acres (98 fields) in Arizona from Karnal bunt regulation in Maricopa County, Pinal County, and Salt River Pima-Maricopa Indian Community tribal lands. Six of the fields met the 5-year cumulative tillage requirement for deregulation, and the rest were removed in the buffer area around the previously positive fields. Twenty-seven (27) wheat-producing States participated in the Karnal bunt national survey. A total of 595 grain samples were processed from 257 unique counties with no positive detections. The PPQ KB national laboratory processed 98% of the samples. An APHIS-approved state laboratory processed the remaining 2%. Based on this national survey, the program certifies wheat exports free of Karnal bunt, assuring trading partners about the safety of U.S. wheat exports, retaining export markets, and facilitating wheat movement into domestic and international markets.

In 2024, growers across the country planted approximately 46.3 million acres of wheat and harvested 38.6 million bushels of wheat with a value of $10.9 billion (National Agricultural Statistics Service, Crop Values 2024 Summary and Crop Production and Quick Stats). The U.S. exported 22.3 million metric tons of wheat, valued at $5.8 billion; wheat products valued at $2 billion; and wheat flour valued at $168 million to 127 countries (USDA Foreign Agricultural Service's Global Agricultural Trade System, 2024). The successful Karnal bunt quarantine and survey program facilitates wheat trade without disruptions.

Witchweed

Witchweed (*Striga asiatica*) is an invasive parasitic plant pest that APHIS lists as a Federal Noxious Weed (7 CFR 360). It threatens corn, rice, sorghum, and sugarcane crops in the United States. A 2023 PPQ Weed Risk Assessment estimated that about 36 percent of the United States is suitable for establishment of the species, and it is present and under quarantine in approximately 0.5 percent of that area. Witchweed was first confirmed in the United States in 1956 and is now confined to seven counties in North and South Carolina. The ongoing eradication effort includes a systematic combination of surveys, treatments, and regulatory activity. In partnership with its cooperators, PPQ has reduced the overall number of regulated acres in the program by more than 99%, from 440,226 acres to 2,530.

In FY 2025, the program surveyed more than 20,000 acres. At the end of FY 2025, 2,530 acres remained regulated, including acres in 2 risk categories—higher risk acres where witchweed has been more recently detected and lower risk acres approaching the point at which they can be deregulated. Because witchweed seeds can remain viable in the soil for up to 15 years, and a host plant must be present for witchweed germination, year-to-year fluctuations in the number of acres infested are common. The program detected four new or reinfested acres during FY 2025. By preventing the spread of this damaging weed, the program indirectly protects U.S. corn production, which covered more than 90.6 million acres in 2024 (National Agricultural Statistics Service, Crop Production Historical Track Records, April 2025).

Roseau Cane Scale

Roseau cane is an important grass species in wetland areas of the lower Mississippi Delta, Louisiana. The plant's root system provides wildlife habitat, protects the interior from storm surges, and protects riverbanks from erosion, which impacts the Mississippi River navigation channel. However, while investigating die-back, the invasive scale insect, Roseau cane scale, was found to be affected by stands. Researchers from Louisiana State University (LSU) investigated potential stressors causing die back, including high water levels, salinity intrusion, scale insects, plant pathogens, and soil chemistry. To further investigate the possible causes of the die off and build management and restoration plans, starting in FY 2018, LSU formed a multi-disciplinary and multi-institutional team with support from APHIS and collaboration with ARS. Research objectives include the biology and control of the scale insect that affects Roseau cane; other stressors that may affect the health of Roseau cane, including soil composition, pH levels, and nitrates; marsh grass restoration techniques; host plant resistance to scale insects; impacts of both beneficial and pathogenic microbes on Roseau cane; and restoration ecology.

With FY 2024 funding from APHIS, LSU continued to investigate the causes of Roseau cane decline. Research strongly suggests that dieback of *Roseau cane* was precipitated by saltwater incursion during an extreme drought event. The introduction of the nonnative Roseau cane scale and possibly pathogenic fungi contributed further stress to the plants. In the Gulf of America, sea levels are rising above the global average, leading to prolonged inundation of coastal Roseau wetlands. This extended submersion overwhelms the plants, exposing their roots to excessive salt levels, leading to dieback.

Findings also suggest that the invasion by the non-native taro plant following Roseau cane dieback could severely limit the ability of the common Delta lineage to successfully recover and reestablish in these areas. The work to date by the Roseau cane die-back team improves our understanding of plant stressors on Roseau cane and the biology, distribution, feeding ecology, and impact of the scale insect attacking the cane at the Mississippi River Delta and provides essential research toward designing and implementing restoration work. Project scientists continue to evaluate the impacts of the presence of *Aprostocetus* sp., an adventive biological agent, that arrived independently and was first detected in the Mississippi River Delta in 2023 on Roseau cane scale, a full seven years after the invasive Roseau cane scale populations were first noted.