

Forage IPM Principles and Best Practices

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What is IPM?

- IPM is a process for solving pest problems while minimizing risks to people and the environment.
- It focuses on long-term prevention of pests or their damage.
- Central to IPM is proper pest identification and monitoring pest populations.
 - Has the pest population met a critical threshold?
 - Can you live with the pest?

How does IPM work?

- IPM uses a combination of techniques to prevent and manage pests, including:
 - Biological control (e.g. pest predators)
 - Cultural controls (e.g. resistant varieties, equipment sanitation)
 - Mechanical and physical controls (e.g. tillage for weeds, traps for rodents)
 - Chemical control (e.g. pesticides)
- Pesticides are tools of IPM programs, but pesticides should be used when monitoring indicates they are necessary.
- Additionally, a goal should be to use products that primarily affect the pest and minimally impact other organisms.
- Always referred to the pesticide label.

Proper diagnosis is critical to IPM

- Problems in the field may be the result of living organisms (i.e. biotic) or non-living conditions (i.e. abiotic)
- Survey the field for trends
- Ask questions of the grower/manager/consultant
- Take soil and plant samples
- Call your local UCCE farm advisor and ask about diagnostic services.

Alfalfa IPM

- Alfalfa is a perennial crop that is typically grown for four or more years in California.
- While the cutting season is during the spring and summer, pest management considerations and decisions are made year-round.
- Pest management consideration can change over the life of the crop.

Pest management begins before the crop is planted

- Pre-plant considerations:
 - Site history (i.e. crop and pest history)
 - Manage weeds
 - Land preparation (i.e. drainage, deep root zone, firm seedbed)
 - Variety selection (pest management ratings).
 - See NAFA publication (<https://www.alfalfa.org/varietyLeaflet.php>)
 - Seed treatment may be a good ‘insurance policy’
 - *Rhizobium* inoculum if the field has not had alfalfa recently
 - Fungicide, particularly if there is known pest pressure

A good stand is, arguably, the most important IPM strategy over the lifespan of the alfalfa crop

- Planting considerations:
 - Ideal timing in the Central Valley is early fall (September)
 - Plant $\frac{1}{4}$ to $\frac{1}{2}$ inch deep, roll for good soil contact
 - Sprinkle irrigate if there is no rain in the forecast
- Seeding rate may vary depending on planting method:
 - 20-25 lb/ac if broadcasted
 - 15-20 lb/ac if drilled
- Looking to have 20-50 plants/sq-ft about a month after planting

Pest management for established stands

- Pests can impact yield and quality
- Population monitoring, correct identification, and economic thresholds are important considerations that should influence treatment decisions



What is this problem?



What is this problem?



What is this problem?



Photo courtesy <https://extension.entm.purdue.edu/>

What is this problem?



Summary

- IPM focuses on long-term prevention of pests or their damage.
- Proper diagnosis and monitoring are critical to IPM.
- Pesticides are tools of IPM programs, but pesticides should be used when monitoring indicates they are necessary.
- Weeds, insects, mites, diseases, and nematodes can impact alfalfa yield and quality.
- Alfalfa IPM is year-round, and best management practices can change over the life of the crop.

Thank you!

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<http://ucanr.edu/sites/deltacrops/>

<http://ucanr.edu/blogs/sjcfielddcrops/>

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