

RUTGERS

New Jersey Agricultural
Experiment Station

Organic Weed and Pest Management

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What is a weed?



- A plant that you don't want in your landscape
- Competing with the plants you DO want
- Indicative of soil problems
- Opportunists
- Weeds vs. invasives

Offense is the best defense



- Healthy soil
- Healthy plants
- Right plant, right place

AVOID



- Compacted soils
- Overtillage
- Overwatering
- Excessive or poorly-timed nitrogen applications

Timing is everything



tywkiwdbi.blogspot.com



foxhavenjournal.com

- Observe weed populations
- Monitor seedling emergence after disturbance
- Life cycle control



[flickr.com](https://www.flickr.com/photos/14911470@N00/10111111111/)

- Smart plant selection
- Proper soil amendments
- Improve soil aeration
- Correct watering techniques



[deere.com](https://www.deere.com/)



flameengineering.com

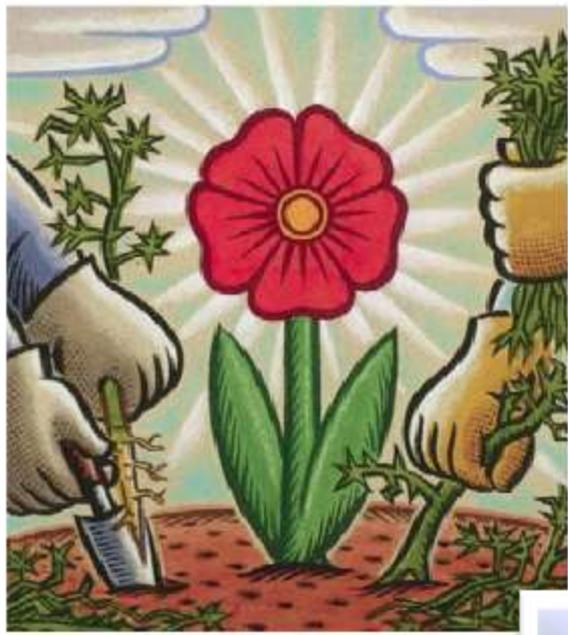


creepypasta.wikia.com

- Nozzle that connects to a propane tank
- More effective at controlling weeds than many organic herbicides with 80% control 21 days after treatment (Chase, et al., 2004)

DOWNSIDE

- DANGEROUS
- Fire is not selective



terriermandotcom.blogspot.com

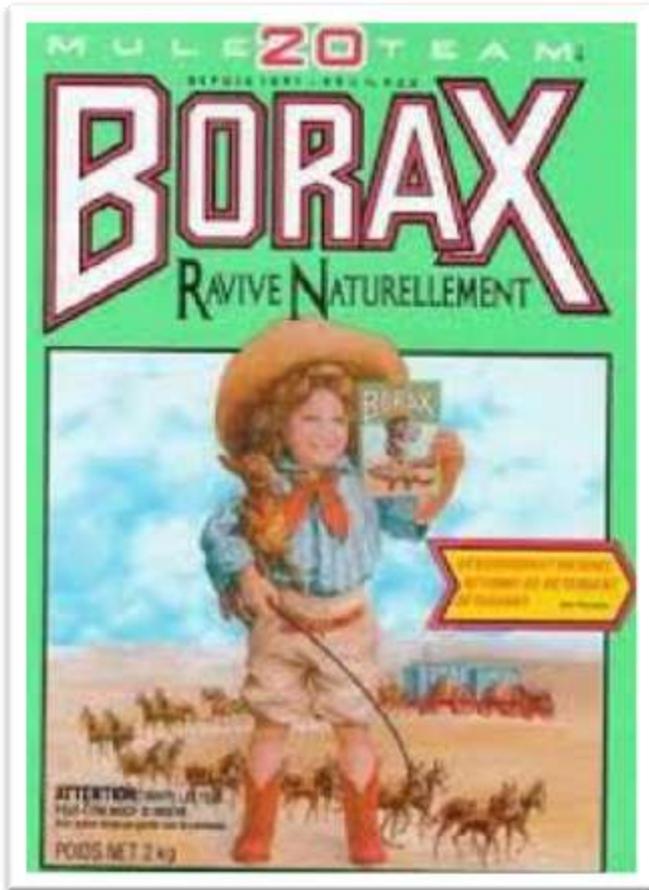
- Get as much of the root as possible – tools can help
- Regular pulling prevents the weed from developing long root systems
- Satisfying?!?



kimmisgarden.blogspot.com

DOWNSIDE

- Time-intensive
- Hard on the body



sodahead.com

- Garlic oil, clove oil, vinegar, borax, salt
- Effective at killing young plants
- Much less toxic than other herbicides
- Cheap

DOWNSIDE

- Won't kill roots of established plants
- Not selective



gardeningktsa.com

- Plastic (non-PVC) sheeting over ground
- Put on ground during hot part of the year for several weeks
- Thinner plastic is best

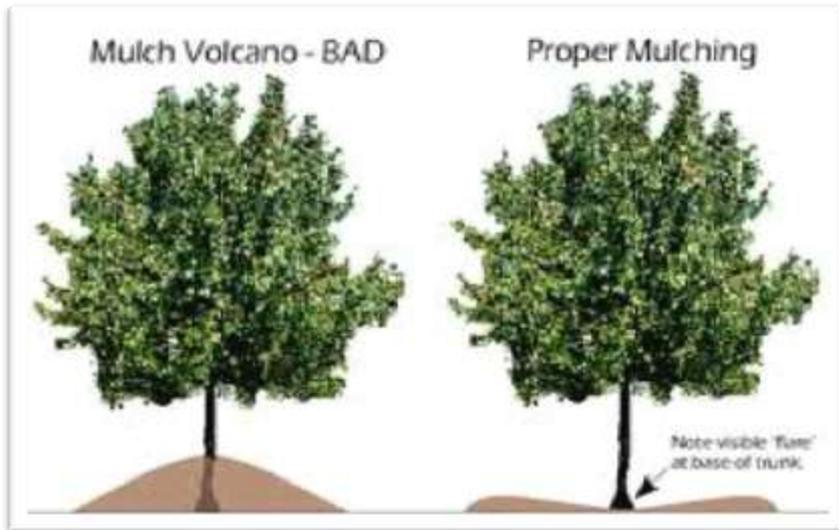
DOWNSIDE

- Works best during growing season
- Not selective



stmarylancaster.com

- Wood chips, bark, pine needles, compost
- Proper application is important
- Weed barrier is prohibited



mtcandl.com

DOWNSIDE

- Can tie up nitrogen after application
- Improper application can lead to problems



21food.com



safelawns.org

- Preemergence
- Provides nitrogen
- One application per year
- Very safe

DOWNSIDE

- Expensive
- May take reapplication for several years



saferbrand.com



planetnatural.com

- Potassium salts of fatty acids (Safer)
- Pelargonic acid (Scythe)





bhq.com

- Iron HEDTA (Ortho Elementals Lawn Weed Killer)
- Citrus oil and citric acids (Ground Force Organic Herbicide)



Extension.umn.edu



The background of the slide features a large, semi-transparent watermark of the Rutgers University seal. The seal is circular and contains a sunburst in the center, surrounded by the text "RUTGERS THE STATE UNIVERSITY" and "1823".

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Pest Management



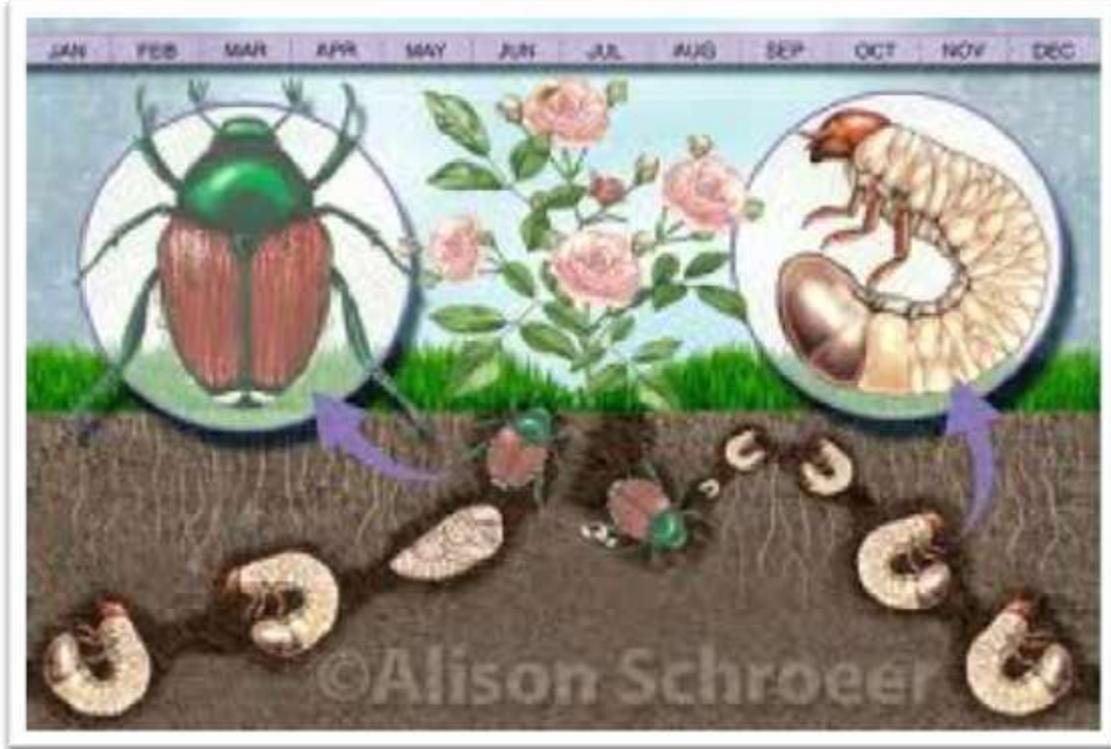
message.snopes.com

- Pest management plan that includes monitoring
- Life cycle timing
- Seek the most specific control for the target pest
- Habitat modification
- Pesticide applicator license is required for commercial application of materials for pest management

Offense is the best defense



- Healthy soil
- Healthy plants
- Right plant, right place



- Observe pest populations
- Monitor conditions during outbreaks
- Life cycle control



Clemson.edu



- Smart plant selection
- Careful inspection of purchased plants
- Avoid monocultures
- Improve habitat of beneficial insects
- Habitat modification
- Proper disposal of infested plants
- Maintain cleanliness
- Handpicking/hosing



Arbordoctor.net



Learn2grow.com

- Pheromones
- Attractive structures
- Baits
- Sticky cards/paste

DOWNSIDE

- Can attract more pests to the area
- Won't control large infestations

Adding predatory insects



[Fcps.edu](http://fcps.edu)



myrmecos.net



pbase.com

- Lacewings
- Ladybugs
- Praying mantis
- Minute pirate bug and big-eyed bug
- Parasitic wasps

DOWNSIDE

- May fly away
- Susceptible to insecticides



soutlandorganics.com



biconet.com

- Small worms in the soil that eat insects
- Reproduction = longer lasting results
- Tolerance of insecticides

DOWNSIDE

- Activity is weather dependent
- Only eats pests with some part of life cycle in soil



[Lowes.com](https://www.lowes.com)

- Milky Spore – bacterial pathogen
- Beetles seem to be building resistance

OMRI™
Listed
Organic Materials Review Institute

OMRI
LISTED
For Organic Use



- Spinosad – bacteria
- Caterpillars, borers, ants,

thegardenseden.com

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sunshinehopa

sunshinegardensfl.com

- Bacillus thuringiensis - Bt
- Caterpillars, mosquitoes
- Generally not as toxic to beneficials
- Mosquito dunks

OMRI[™]
L i s t e d
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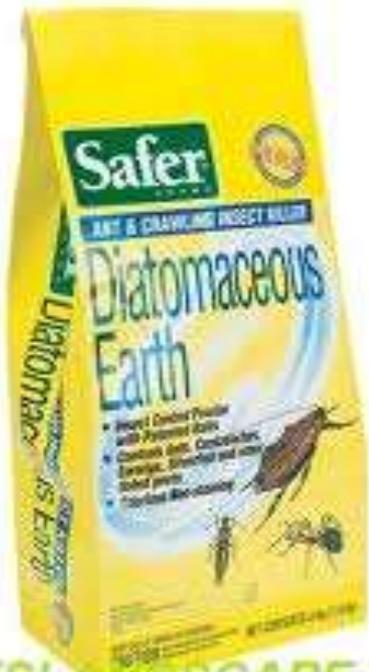
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[Amazon.com](https://www.amazon.com)

- Neem – extract from tree
- Mites, aphids, whiteflies
- Also controls some fungal diseases
- Toxic to aquatic organisms





MATTSLANDSCAPE.COM

mattslandscape.com

- Diatomaceous earth
- Ants, earwigs, cockroaches, silverfish, crickets, fleas, millipedes, centipedes
- Be careful to avoid inhalation





[amazon.com](https://www.amazon.com)

- Pyrethrum – from a chrysanthemum species
- Fire ants, box elder bugs, squash bugs, sawfly larva
- Breaks down quickly in the environment
- Toxic to beneficials



Offense is the best defense



outsidepride.com

- Healthy soil
- Healthy plants
- Right plant, right place
- Patience!

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