



# Kochia

Bayer Solutions

## // THE PROBLEM

Kochia is one of the most difficult-to-control weeds in the west, with its deep root system, prolific seed production and potential herbicide resistance. By the time a kochia plant is only 5 cm tall, the root system can be over 15 cm long and below the reach of typical herbicides in drier areas with little rainfall after applications. A full-grown plant can send roots up to 5 m deep and 7 m wide in search of moisture. A wind-blown kochia plant can cover two miles a day, scattering 15,000-25,000 seeds along the way. These characteristics can allow kochia to quickly overtake rights-of-way and reach heights of 1-1.5 m, blocking sightlines and creating a public safety hazard.

Kochia's quick-growing and extensive root system help explain its ability to withstand drought and why it is hard to control with pre- or post-emergent herbicides. Fortunately, Navius® FLEX herbicide or other aminocyclopyrachlor containing blends, when correctly applied, are tools that can deliver long-lasting kochia control.

## // RESISTANCE ISSUES

Kochia has developed resistance to multiple herbicide modes of action in Canada. Resistance to atrazine was documented by Kansas railroads in the 1970s. Resistance to sulfonylurea (SU) herbicides was documented throughout the west in the '80s. In the '90s, kochia resistant to auxin herbicides was also documented in Montana, North Dakota, Idaho and Colorado. In the last 10 years, resistance to glyphosate has also been found. There are now populations that are documented to have resistance to multiple herbicides – either SUs and atrazine or SUs and glyphosate. The presence of herbicide-resistant kochia populations is why it is important to follow best management practices, including using full label rates, applying pre-emergence or when plants are small, and using different classes of herbicides.



## // BAYER SOLUTIONS

### **Pre-emergent solutions**

Applying Esplanade™ and Navius FLEX before kochia emerges delivers the most effective control, especially in areas of western Canada, which experience heavy kochia pressure. Applications can be made at any time, except when the ground is frozen or covered in snow.

### **Post-emergent solutions**

Because of kochia's fast-growing, deep and branched root system, post-emergent control can vary. Applying Navius FLEX to small kochia plants – preferably when they are 5-10 cm tall – can improve control. If kochia plants are taller than 10 cm, or for heavy infestations, include a tank-mix partner such as glyphosate, dicamba or fluroxypyr as appropriate for the use site.

Effective control requires complete spray coverage of the foliage. Use application equipment that gives the best coverage of all kochia plants while minimizing spray drift. Remember, taller plants, railroad ties, guardrails and other obstacles can shield or shadow smaller plants and limit contact with shorter kochia.



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Application Type	Solution	Rate	Application Timing
Pre-emergent*	Esplanade + Navius FLEX	375 mL/ha + 167 g/ha	Mid-April
Pre- and post-emergent* bareground	Esplanade + Navius FLEX	375 mL/ha + 167 g/ha	Spring emergence period – preferable before kochia grows to 10 cm in height
Post-emergent selective weeding	Navius FLEX or Truvist®	167 g/ha 168 g/ha	Spring emergence period – preferable before kochia grows to 10 cm in height

\*Glyphosate must be added once weeds have emerged

For more information about effective vegetation management, contact your Bayer representative or visit [es.bayer.ca](http://es.bayer.ca)



Kochia growing alongside railway.  
Photo: Dr. David Spak, Bayer.



Kochia seedling with deep roots.  
Photo: Derek Sabastian, Colorado State University.



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