



## IVM White Paper

**Integrated Vegetation Management (IVM)** is used to create, promote, and conserve sustainable plant communities that are compatible with the intended use of the site, and discourage incompatible plants that may pose concerns; including safety, security, access, fire hazard, utility service reliability, emergency restoration, visibility, line-of-sight requirements, regulatory compliance, and environmental, or other specific concerns. Techniques include manual or mechanical cutting, herbicide treatments, cultural and biological controls.

- **Manual or mechanical cutting** techniques are used for site restoration when targeted incompatible plants are tall and/or dense and inhibit the intended use of the site. Routine use of cutting does not constitute IVM since the cut stems simply re-sprout from viable root systems. Mechanical equipment can negatively impact nesting wildlife or feeding pollinators, rut wetland soils and pollute hydrocarbons.
- **Herbicides** are necessary to remove incompatible plants and should be applied according to height thresholds that enable accurate and effective targeting.
  - Broadcast treatment may be necessary if incompatible plants are dense and inhibit growth of compatible plants. Routine broadcast treatments do not constitute IVM since conversion to compatible plants cannot be accomplished with this technique alone.
  - The primary herbicide method after prairie vegetation is established, is by selective treatments using handheld nozzles (preferably low volume backpacks). This technique will be very selective towards taller woody vegetation and allow a rich diversity of prairie plants and some appropriate shrubs to thrive in the ROW. Invasive woody and herbaceous vegetation can also be easily targeted with handheld backpacks, with decreasing inputs and costs over time.
- **Cultural** controls involve the introduction of plants usually by seeding local, native species for erosion control after construction to hold soil until subsequent germination of the native seed bank. Isolating and then spreading top soil back over construction sites expedites this process.
- **Biological** controls are derived from compatible plant competition for sunlight, water and nutrients and their production of natural herbicides (allelopathic chemicals) that inhibit growth of incompatible plants, and predation of seeds and seedlings by animals (birds, voles, mice, etc). Selective herbicide treatments develop and sustain biological controls, with corresponding cost reduction of 30-50% compared to routine mechanical cutting or broadcasting herbicides.

**IVM** selects the correct technique according to vegetation conditions found by inspection not arbitrary cycles. Herbicides are a necessary tool but chemical choice, application method and timing determines success. Grasses and small forbs may be desired for electric utility wire zones, natural gas pipeline zones, highway safety zones and agricultural filter strips and ditches; while border zones of electric and gas pipelines, back-slopes of highway corridors, and CRP lands around cropped fields may allow larger forbs, shrubs and small stature trees. When compatible plant communities become established in their respective zones, periodic selective treatments are able to manage this stable state with decreasing inputs of herbicides, disturbance, and cost.

**IVM** derived early successional plant communities not only provide for the intended use(s) of the site, but provide prairie-type habitats necessary for food and cover of native bees, butterflies, birds and a host of vertebrate and invertebrates. Adoption of these best IVM practices can positively influence habitat on millions of acres of land in the United States.

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