



# AC Saltlander green wheatgrass

## Increasing productivity of saline soils

Saline soils are those that contain sufficient soluble salts to impair growth of plants. Most forage plants cannot persist in these areas leaving opportunity for invasion by weedy species. These saline areas are often ignored and unmanaged, with low productivity because rehabilitation is difficult and costly. A perennial grass species that can establish, persist, provide competition to weeds and provide good quality forage for grazing is an ideal tool for reclamation of saline soils.

AC Saltlander green wheatgrass (*Elymus hoffmannii* Jensen & Asay), is an introduced perennial forage grass that demonstrates exceptional salinity tolerance. Its extensive, creeping root system can dewater saline areas and spread out, covering the ground to compete with unwanted, unproductive or unpalatable plants. In addition, AC Saltlander is productive, palatable, and has good nutritional qualities, making it an ideal selection when seeding saline soils.



### Development

Green wheatgrass (*Elymus hoffmannii*) is believed to originate from a naturally occurring hybrid between blue bunch wheatgrass (*Pseudoregneria* spp.) of Eurasian origin, and quack grass (*Elymus repens*). Initial selections in the USA, from seed collected in Turkey, focused on enhancing bunch grass growth form, plant vigour, leafiness, seed production and pest resistance. Further selection for salinity tolerance, winter hardiness, erect growth form, leafiness, and green plant colour occurred at the Semiarid Prairie Agriculture Research Centre (SPARC) at Swift Current SK. This program led to the development of AC Saltlander in 2004.

### Forage yield and quality

AC Saltlander is able to produce excellent dry matter (DM) biomass yields. Yields are similar to that of tall wheatgrass in non-saline & saline conditions and superior to Altai wild rye, Russian wild rye and smooth brome (Carlton variety) in non-saline conditions.

AC Saltlander has good palatability and forage quality. Grazing studies at SPARC have indicated that digestibility, crude protein and neutral detergent fibre (NDF) of AC Saltlander are comparable to smooth brome when grazed at the boot to flag leaf stage. Average quality was found to be 15-19% crude protein, 45-57% NDF and 63-65% digestibility. Green wheatgrass begins growth early in the spring and remains palatable into late summer.



### **Vegetative spread**

AC Saltlander has a rhizomatous, creeping root system allowing it to move between seed rows and compete well with foxtail barley and other weeds. Selection and breeding efforts have reduced the overly aggressive nature but retained a moderate amount of vegetative spread to increase persistence on saline soils. Tests to determine rhizome spread have shown that AC Saltlander green wheatgrass spread is half that of quack grass and about double that of smooth brome (Carlton variety).

### **Foxtail barley suppression**

AC Saltlander green wheatgrass was recently part of a study which evaluated potential forages for suppressing foxtail barley and downy brome in saline areas ranging from slight to severe. The study showed that AC Saltlander could compete with the foxtail barley and downy brome and significantly reduce their presence in the stand thereby reducing costs of control and enhancing the forage productivity of these saline areas.



### **Ongoing research**

AAFC researchers at SPARC in Swift Current, SK. continue to evaluate the agronomic and forage nutritional aspects of AC Saltlander. A Saskatchewan Ministry of Agriculture funded project will study the effect of reducing seeding rates, seeding method and seeding time on establishment and forage production, the effects of various nitrogen fertilizer rates on biomass production and determine the flood tolerance of AC Saltlander compared to smooth brome.

### **Management considerations**

AC Saltlander is intended for saline soil conditions. In order to reduce seed costs, concentrate AC Saltlander on areas of salinity rather than using a blanket prescription across entire fields.

AC Saltlander has a creeping root system, be aware of the proximity of natural range and riparian areas adjacent to intended seeding locations and take precaution to mitigate the risk of encroachment onto these areas.

Seed supplies can contain weed contaminants. Check the forage seed quality certificates and use best management practices to mitigate risks of weed dispersal.



For more information, please contact:

**Dr. Alan D. Iwaasa**

Grazing Management and Ruminant Nutrition  
Semiarid Prairie Agricultural Research Centre  
Agriculture and Agri-Food Canada  
P.O. Box 1030  
Swift Current, Saskatchewan S9H 3X2  
Alan.Iwaasa@agr.gc.ca  
Telephone 306-770-4473

For more information, please contact:

**Ken Wall,**

Hydrology Technician  
Semiarid Prairie Agricultural Research Centre  
Agriculture and Agri-Food Canada  
P.O. Box 1030  
Swift Current, Saskatchewan S9H 3X2  
Ken.Wall@agr.gc.ca  
Telephone 306-770-4433