

Appendix 1 – Foxtail Background – Dispersion, Regulation, and Complaints Received

How and Where Foxtail Spreads

Foxtail is a perennial species that overtakes disturbed land and thrives in saline soils where other species cannot survive. It spreads by seed alone. The seeds are very mobile, and once released from the plant, either naturally at maturity or by mowing operations, can be blown over long distances by the wind. If disturbed land is left as is (bare), dormant weed seeds in the soil and wind-dispersed weed seeds, like Foxtail, are likely to germinate. Foxtail barley numbers have been steadily on the rise over the last 40 years or so in Saskatchewan as zero-till farming has become common place. Since its spread is largely dependent on seed dispersal rather than weather or other environmental conditions, a bad Foxtail year with a large production of seed would typically be followed by a larger infestation in the next year.

Varying degrees of Foxtail establishment can be found in parks and open space areas. Generally, cultural practices, such as regular mowing, fertilizing, irrigating, and competition from planted competitive grass species keep Foxtail from spreading to adjacent areas over time. The higher mowing service levels in groomed, irrigated parks (up to 18 mows per season) and even in dryland parks (up to 9 mows per season) keep Foxtail seed release from being an issue. Lower service levels in other areas may result in seed release.

Newly constructed Public Right-of-Ways and buffers also have concentrations of Foxtail due to the germination of the weed on disturbed ground during the construction periods and the difficult post construction growing conditions. Once such areas are turned over to the Parks Department for maintenance, four to five cycles of mowing are conducted, annually. Generally, spread is limited due to the competing grass species becoming established.

High concentrations of Foxtail on areas of disturbed bare ground in newly developing neighbourhoods are present in the city. Maintenance, if any, of larger tracts of unserviced land, smaller vacant lots, and partially constructed lots has generally involved the application of mowing services by developers and lot owners in some of the areas (up to three times per season, but often just one mow). This is not always an adequate control measure as it still permits the release of Foxtail seed. For example, numerous complaints were received after some development lands were mowed in the summer of 2020. The severed Foxtail seeds were blown by the wind, ending up in drifts in yards of some residents.

Mowing Foxtail is an effective control method only if the cuts are timed to eliminate seed production and dispersion. There is a short window of seven to nine days that begins when the plant starts to develop flower heads. Mowing within that window removes the flower heads and prevents seed development. Mowing after the window has closed will not stop seed production, as the seed heads continue to mature after being cut. Vacuum mower attachments (which collect the seed heads as they are mowed for disposal off-site) are on the market, but few local contractors have units available to deal with large infestations.

Regulation of Foxtail

The *Weed Control Act* designates Foxtail under Schedule III as a Nuisance Weed. It includes the seeds or any other part of the plant that may grow to produce another plant. Weeds with this designation are required to be controlled by the owner and occupants according to the *Weed Control Act* (to prevent the spread of nuisance weeds and reduce the negative effects of nuisance weeds where there is an infestation). The *Weed Control Act* can be enforced on private property by a Weed Inspector, designated by the local municipal government. The Parks Department is responsible for providing inspection and enforcement services associated with this provincial legislation.

Property Maintenance and Nuisance Abatement Bylaw No. 8175 ensures that all properties within the city are maintained to an acceptable standard. This includes keeping vacant lots free from excessive growth and weeds. Tall grass and weeds are not to exceed 20 cm (7.8 inches) in height. The Saskatoon Fire Department is responsible for providing inspection and enforcement services associated with this bylaw.

City weed inspection resources are funded to provide a reactive response service to complaints received from members of the public. In the case of Foxtail, complaints are generally provided to the City's inspection services only once the weeds are in a mature stage with well-developed seed heads.

Considering the discussion above about the mowing "window" for effective control, reactive Orders to Remedy Foxtail by mowing can result in large amounts of seed being dispersed to neighbouring properties. Since plant height triggers a regulatory response under Property Maintenance and Nuisance Abatement Bylaw No. 8175, Foxtail typically has gone to seed by the time enforcement measures can be taken under that bylaw. Standard enforcement under Property Maintenance and Nuisance Abatement Bylaw No. 8175 is to mandate mowing or cutting, which again will likely result in seed dispersion. Both functions (property maintenance and weed inspections) are largely inefficient at addressing the issue because enforcement is based on a reactive response model. This highlights the need for proactive management, whether that be mowing, herbicide application or tillage, before seed formation.

Complaints Received

Various departments at the City receive Foxtail-related complaints. For 2020:

- Saskatoon Fire received and addressed 27 complaints where Foxtail was specifically reported as the concern.
- Community Standards received 8 complaints in 2020, which has been increasing over the past five years.
- The Service Saskatoon, Customer Care Centre, and Council Support email inboxes received a combined total of 35 individual e-mail threads in relation to Foxtail. Many of these were forwarded on to other Departments, such as Parks, for resolution.

It is important to note that some complaints are placed directly with staff and are not accounted for in this total.