

## **AGR2102: Impact of Herbicides, Moisture, Disease, and Fungicides on Chickpea**

Beginning in 2019, chickpea crops in Saskatchewan have suffered from an emerging health issue that significantly impacted yield in some instances. The issue has recurred in 2020 and 2021. Symptoms include chlorosis, leaf-tip chlorosis, bleaching, and/or death of new growth at the tops of plants and, sometimes, complete plant death. To date, the cause(s) of this health issue are not known. Potential contributing factors include abiotic stress, herbicides, disease, nutrient stress, and/or nematodes. This project aims to explore possible causes for the emerging chickpea health issue.

In 2021, field surveys in which agronomic data and physical samples were collected were conducted. Agronomic and symptom data from 2021 indicated that the issue appeared in an expanded geographic region, while remaining concentrated near Assiniboia in Southwest Saskatchewan. The health issue was found in more fields of CDC Leader than CDC Orion. Two fields of the desi variety CDC Consul were also impacted. Symptom severity did not correlate with reported precipitation. However, the years with the emerging health issue had atypical rainfall patterns in the Assiniboia, SK area, suggesting that moisture stress may contribute to the issue. Based on the results of the field survey, metribuzin - but not other herbicides - is linked to increased symptom severity. Fungicide application does not appear to contribute to the emerging health issue, but nematodes may. Based on recent work conducted by Dr. Sabine Banniza's group, or commissioned by Saskatchewan Pulse Growers, the fungal pathogens *Verticillium dahliae*, and/or *Cylindrocladium* spp. may also merit further exploration.