

CASE STUDY 2: SWAT MAPS DRIVING POSITIVE LAND USE CHANGE

One example of land use change to manage ground water levels and subsequent salinity has been used extensively on Olee Acres Inc., a farm located in the Quill Lake area of east central Saskatchewan, Canada. As a long-time farmer and owner, Dwight Odelein recognized it was going to take management change to avoid further production losses to salinization on his land. The farm began implementing targeted forage seeding, followed by VR management of seed and fertility with SWAT MAPS in 2021. Many of these areas of the farm are still in forages or have successfully been regenerated and are back in annual grain production. An example of this is illustrated in Figure 1, which shows imagery from 2016 and 2025 both mid-season and post-harvest. Historically the NE corner of the field was badly affected by salinity and poor drainage.

The poor productivity is visible in the July 2016 image, as well as lack of growing cover in September later that year. But as of 2025, much of the salt affected area is now growing perennial forages, and adjacent crop is profitable. The growing forages continue to use water late in season, long after the annual crop has matured (image dated 30-9-2025) and provided two cuts of hay in 2025 (Figure 2). The adjacent areas that are still at risk of salinization are typically managed with lower fertilizer rates but higher seeding rates to ensure crop establishment and provide ground cover.

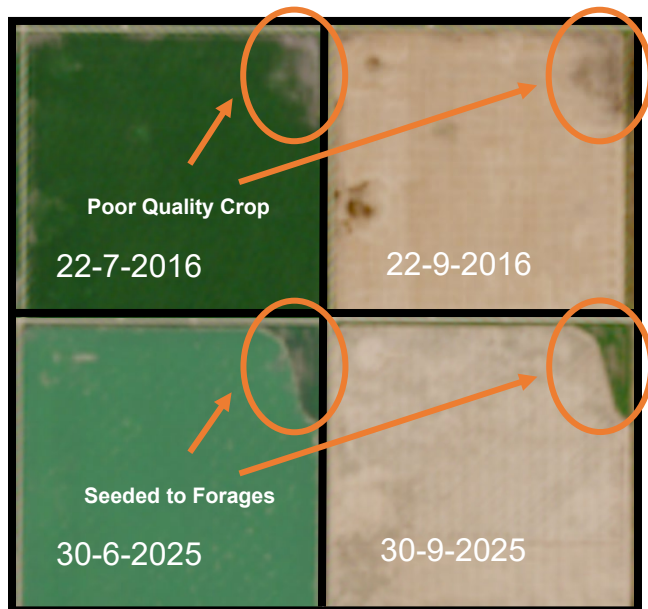


Figure 1. True color satellite images of a field mid-season (left) and post-harvest (right). Top images are prior to implementation of forages to manage water.



Figure 2. Photos of targeted area growing perennial forage (upper) and first cut (lower).