

Chapter 17 Agriculture—Mitigating Pests in Crops and Pastures

1.0 MAIN POINTS

Saskatchewan accounts for almost half of Canada's total field crop acreage. These crops and pastures are at risk of damage from regulated pests, which are either an animal, insect or disease that the Ministry of Agriculture declares a pest. The Ministry is responsible for mitigating the impact of these regulated pests in crops and pastures.

By June 2023, the Ministry improved its processes to mitigate the impact of regulated pests by implementing two of the five recommendations we first made in 2020, and made progress on the three remaining recommendations.

The Ministry plans to repeal and replace *The Pest Control Act* with *The Plant Health Act* early in 2024. This will guide the Ministry in reviewing and determining whether current regulated pests will continue to be regulated under the new Act and revised regulations.

The Ministry updated guidance on responding to grasshopper infestations. The Ministry also created guidance documents, pending approval, for bacterial ring rot and late blight fungus that includes how to detect the diseases, who is responsible in managing them, and best practices for prevention. These documents will not be published until the Ministry conducts a regulated pest review in relation to *The Plant Health Act*.

In 2023, the Ministry continued to work to update its process to accurately determine Richardson's ground squirrel (gopher) populations, including using data provided by Saskatchewan Crop Insurance Corporation.

Further, the Ministry communicated positive clubroot lab-test results to producers within the expected 30 days of receiving results.

In 2021, the Ministry commenced annual reporting to senior management on regulated pest activity. This reporting includes a summary of key facts, mitigation strategies and detailed information on each regulated pest.

Effectively mitigating the impact of regulated pests helps to avoid them significantly and adversely impacting the yields and quality of Saskatchewan's crops and pastures.

2.0 INTRODUCTION

Provincial laws make the Ministry of Agriculture responsible for promoting the agricultural or agri-food interests in the province.¹ Under *The Pest Control Act*, the Ministry, through regulation, may declare any animal, insect, or disease deemed as likely to be destructive or dangerous to any crop, grain, livestock or other property to be a pest.²

¹ *The Agricultural Administration Act*, s.6.

² *The Pest Control Act*, s.3.



At June 2023, the Minister of Agriculture declared the following regulated pests: brown or Norway rat, Richardson's ground squirrel (gopher), grasshopper, feral pig, clubroot, late blight fungus, and bacterial ring rot.^{3,4}

The Pest Control Act also makes the producer or landowner responsible for controlling identified regulated pests (see **Figure 1**).

Figure 1—Responsibility of Producers

Every person shall take measures to destroy any crop, vegetation, vegetable or other matter on any land or other premises owned, occupied or controlled by them that may contribute to the spread of any pest. By law, whenever a pest appears in a municipality or whenever the council of a municipality is of opinion that a pest is likely to appear in the municipality, the council may pass a bylaw providing for the purchase of materials required for the control or destruction of the pest within the municipality.

Source: *The Pest Control Act*, s.5.

The Ministry makes its Crops and Irrigation Branch primarily responsible for coordinating Ministry pest programs. The Branch employs approximately 40 staff, of which 12 have a direct role in pest surveillance, extension or diagnostics. In 2022–23, the Ministry budgeted \$532 million (2022–23 actual: \$513 million) for its operations, with about \$1.1 million budgeted for pest management under the Crops and Irrigation Branch.⁵

2.1 Focus of Follow-Up Audit

This chapter describes our first follow-up audit of the Ministry of Agriculture's actions on the recommendations we made in 2020.

In 2020, we assessed the Ministry's processes to mitigate pests in crops and pastures. Our *2020 Report – Volume 2*, Chapter 19, concluded that for the 12-month period ended July 31, 2020, the Ministry had effective processes to mitigate the impact of regulated pests in crops and pastures in Saskatchewan, except for the areas outlined in our five recommendations.⁶

To conduct this audit engagement, we followed the standards for assurance engagements published in the *CPA Canada Handbook—Assurance* (CSAE 3001). To evaluate the Ministry's progress toward meeting our recommendations, we used the relevant criteria from the original audit. Ministry management agreed with the criteria in the original audit.

To carry out our follow-up audit, we interviewed Ministry staff to discuss key actions management had taken since our 2020 audit to implement the recommendations. We reviewed new guidance documents, staff communications, a sample of lab test results and supporting documentation to obtain an understanding of actions taken.

³ *The Pest Declaration Regulations*, s.2; *The Bacterial Ring Rot Control Regulations*; *The Late Blight Control Regulations*.

⁴ Subsequent to our 2020 audit, the Minister of Agriculture declared feral pig to be a regulated pest as of June 20, 2022.

⁵ *Ministry of Agriculture Annual Report for 2022–23*, p. 13. Budgeted expense information for pest management provided by the Ministry.

⁶ *2020 Report – Volume 2, Chapter 19*, pp. 109–127.

3.0 STATUS OF RECOMMENDATIONS

This section sets out each recommendation including the date on which the Standing Committee on Public Accounts agreed to the recommendation, the status of the recommendation at June 30, 2023, and the Ministry's actions up to that date.

3.1 Robust Model Needed to Determine Richardson's Ground Squirrel Populations

We recommended the Ministry of Agriculture revisit how it will conduct surveillance to determine populations of Richardson's ground squirrel.

(2020 Report – Volume 2, p. 120, Recommendation 1; Public Accounts Committee agreement February 8, 2021)

Status—Partially Implemented

The Ministry of Agriculture continues to develop a robust process to estimate Richardson's ground squirrel (i.e., gopher) populations.

In 2022, strychnine was deregistered in Canada and no longer available for landowners to purchase and use to reduce gopher populations.

Beginning in 2022, the Ministry created a report to evaluate gopher populations based on data collected (e.g., number of acres damaged by gophers) from Saskatchewan Crop Insurance Corporation (SCIC). Prior to this, the Ministry tracked gopher populations based on strychnine sales. The estimation process includes receiving site-specific claims data from SCIC. However, the Ministry is still working to develop a robust predictive model so predictions for gopher populations in future years are reasonably accurate.

We found the Ministry completed timely analysis of gopher populations (i.e., completed two months after year-end). Furthermore, we found the report included a year-over-year comparison of SCIC claims showing declining gopher populations.

The Ministry told us it is planning to assess gopher populations in the future by supplementing SCIC data with:

- A broad questionnaire-based survey to producers to assess local populations and areas affected
- Data on natural predators (e.g., various bird species)
- Weather data (e.g., drought, temperatures, precipitation)

In addition, the Ministry also plans to collaborate with Canadian experts to gain insight into approaches for developing models to estimate gopher populations.

Having a robust model to determine gopher populations will reduce the risk the Ministry may not have correct information to make good decisions in order to manage gopher populations.



3.2 Guidance Needed to Prepare Response Plans for Regulated Pests

We recommended the Ministry of Agriculture proactively provide producers with written guidance about detecting and reporting the presence of late blight and bacterial ring rot. (2020 Report – Volume 2, p. 121, Recommendation 2; Public Accounts Committee agreement February 8, 2021)

Status—Partially Implemented

We recommended the Ministry of Agriculture, working with its key stakeholders, provide producers with written guidance on developing response plans for grasshoppers, late blight, bacterial ring rot, and brown or Norway rat. (2020 Report – Volume 2, p. 123, Recommendation 4; Public Accounts Committee agreement February 8, 2021)

Status—Partially Implemented

The Ministry of Agriculture developed written guidance for detecting and reporting bacterial ring rot and late blight diseases; both documents are pending approval. The Ministry also updated guidance on responding to grasshopper infestations. However, the Ministry has not developed similar written guidance for the brown or Norway rat.

The Ministry has not made the bacterial ring rot and late blight guidance available to producers as they are still assessing the changes to the pest regulations due to the new *The Plant Health Act* expected to come into effect early in 2024.

We found the draft bacterial ring rot and late blight documents align with good practice by setting out what each disease is; its symptoms; how it spreads; how the diseases are regulated; best practices for prevention, surveillance and testing; and roles and responsibilities of producers and the Ministry. Additionally, the documents include photos and diagrams to assist producers in understanding the outlined information. While the draft guidance awaits approval, it is available for distribution to producers if a bacterial ring rot or late blight outbreak occurs in crops and pastures, and outlines the actions required if either disease is confirmed or suspected.

The Ministry told us it has plans in late summer/fall 2023, to assess the current regulated pests to determine whether they will continue to be a regulated pest pending the repeal and replacement of *The Pest Control Act* with *The Plant Health Act*. Therefore, the Ministry is assessing whether the bacterial ring rot and late blight guidance will be relevant or formally released once *The Plant Health Act* comes into effect in 2024.

We found the Ministry also maintains guidance for grasshopper infestations that sets out grasshopper types and good practices for prevention. In 2023, the Ministry updated its guidance for crop protection insect control. This guidance includes information on responding to grasshopper infestations such as how much insecticide chemical to use (e.g., rate per acre) and how many days before harvest to use it; what type of application (i.e., aerial or ground); and intervention guidelines for different crops (e.g., canola, peas, lentils). This information is publicly available on the Ministry's website.

As for the guidance for the brown or Norway rat, the Ministry has not drafted guidance because the Ministry is currently undertaking an assessment to determine which pests will continue to be deemed regulated pests.

Having published guidance for detecting and reporting the presence of late blight, bacterial ring rot, and the brown or Norway rat would allow for early pest detection and response planning for any outbreak, and would allow producers to minimize the risk of crop losses from pest infestations.

Response planning provides a structured and prompt reaction for producers to minimize the risk of the spread of pests. The lack of a response plan increases the risk of crop losses from pest infestations.

3.3 Timely Reporting of Clubroot Lab Results Communicated

We recommended the Ministry of Agriculture make sure laboratory results confirming clubroot presence are communicated to producers promptly.

(2020 Report – Volume 2, p. 122, Recommendation 3; Public Accounts Committee agreement February 8, 2021)

Status—Implemented

The Ministry of Agriculture communicated clubroot lab results to producers timely (within 30 days) in accordance with its Standard Operating Procedures.

The Standard Operating Procedures require staff to communicate positive lab-test results through Plant Health Technical Advisors (located in various municipalities) to producers within 30 days of receiving the results.

Figure 2—2022 Clubroot Survey Results

In 2022, the Ministry:

- Surveyed 482 fields in 180 Rural Municipalities across Saskatchewan
- Confirmed 6 new cases of clubroot in commercial fields
- Confirmed visible signs of clubroot in 4 additional Rural Municipalities
- Completed follow-up surveys on 51 fields where visible signs of clubroot was previously identified

To date, visible symptoms of clubroot has been confirmed in 82 commercial canola fields and only the clubroot pathogen DNA in 42 additional fields.

Source: Adapted from the Ministry of Agriculture's report on *2022 Mitigation Efforts of Clubroot*.

We found for the 15 clubroot lab results tested:

- Staff documented the date they received the lab results and provided them to the producer
- Staff communicated the lab results to producers within the 30-day period after receiving the results (i.e., range of 7–22 days)

Timely distribution of clubroot lab results enables producers to implement appropriate measures promptly to contain clubroot disease in order to control its spread. Timely action helps to reduce the impact of the disease on crops and pastures.



3.4 Reporting on Regulated Pests Completed

We recommended the Ministry of Agriculture periodically report to senior management on the sufficiency of mitigation of regulated pests including Richardson’s ground squirrel, late blight, bacterial ring rot, and brown or Norway rat. (2020 Report – Volume 2, p. 125, Recommendation 5; Public Accounts Committee agreement February 8, 2021)

Status—Implemented

The Ministry of Agriculture’s Crops and Irrigation Branch provides senior management with reports of regulated pest activity annually.

Beginning in 2021, the Branch’s Executive Director submitted a report, including appendices for each regulated pest mitigation activities, to senior management and for the Assistant Deputy Minister’s approval.

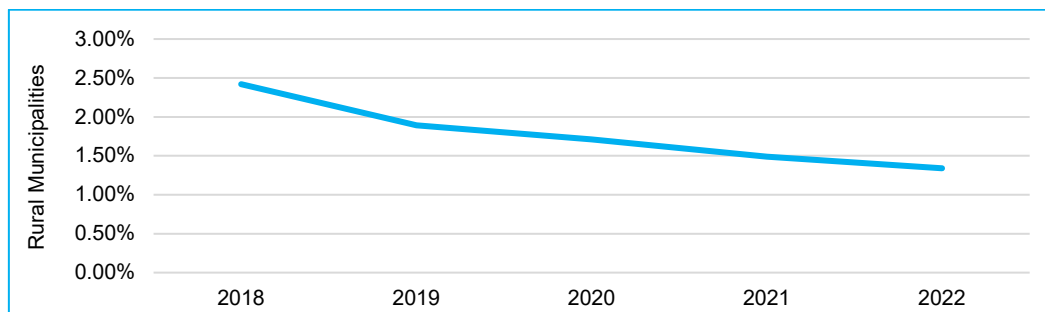
We found the report included:

- A summary of key facts for all regulated pests
- An appendix with a report of each individual regulated pest (e.g., grasshopper, Richardson’s ground squirrel, feral pig, brown or Norway rat, clubroot, bacterial ring rot, late blight) which includes:
 - Status of mitigation activities
 - Upcoming year forecasts to assist with the Ministry’s next year’s plan to mitigate regulated pests and to identify trends associated with mitigation efforts
 - Year-over-year trend analysis for provincial rat infestation counts

Overall, we found the report provided sufficient detail to inform and assist senior management in its decision making for mitigation strategies for regulated pests.

One of the Ministry’s mitigation strategies for brown or Norway rat was the Rat Control Program under the Sustainable Canadian Agricultural Partnership Agreement which provides financial assistance, human resources, training, education and printed materials to create uniformity on rat control. Saskatchewan Association of Rural Municipalities administers this program. Over the five-year period of the Program, rat infestation rates have trended downward (See **Figure 3**).

Figure 3—Rat Infestations in Saskatchewan



Source: Adapted from *Rat Control Program 2022–23 Pest BioSecurity Program Final Report*.

In addition, the Ministry continues to publish the clubroot distribution map that outlines the rural municipalities where clubroot has been identified.⁷

Formal, regular reporting to senior management on regulated pests decreases the risk of ineffective decision making about the sufficiency of resources provided and the success of mitigation activities. It also assists in assessing whether the Ministry is responding appropriately to control confirmed regulated pest infestations and to prevent the risk of future occurrences.

⁷ 2022 Clubroot Distribution Map www.saskatchewan.ca/government/news-and-media/2023/january/09/2022-clubroot-distribution-in-saskatchewan (17 August 2023).

