

AGRICULTURE VICTORIA

Annual Report

2022



CropSafe

no exotics for Victoria

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CropSafe: 2022 review

Exotic plant pests and diseases pose a significant threat to Victoria's cropping and horticulture sectors. Increased movement of plant materials, farm products and international travel, have increased Victoria's risk of significant exotic plant pest and disease incursions.

Preventing pests and diseases from becoming established, and quickly identifying and eradicating localised outbreaks, is critical to protecting these industries.

CropSafe, is a surveillance system, aimed at increasing the identification and reporting of plant pests and diseases by agronomists, delivering a reassuring biosecurity service that protects these valuable industries. The **CropSafe** program is delivered by Agriculture Victoria (DEECA), in collaboration with major agribusiness companies and a network of private consultants.

Agronomists have improved their knowledge on endemic disease identification and education of exotic symptoms through targeted industry training and awareness delivered by the **CropSafe** program.

During 2022, 68 samples were submitted to **CropSafe** for identification of unknown pests and diseases, down from 78 samples submitted the previous year. The average number of samples submitted each year is around 100, excluding 2014 data which was skewed by a *Turnip yellows virus* outbreak in canola.

Less samples were submitted during 2022 for 'easy' identification. Early samples centred around poor emergence, root disease, and stunting. In later samples agronomists looked for assistance with identifying unknown head infections in wheat. Several samples were submitted with 'odd' symptoms

and screened for potential exotic pests and diseases by Crop Health Services. This included stubble that had turned a bright shade of orange. One first report was made for *Fusarium gamsii*. This was a result of the species level identification of the *Fusarium* spp. associated with late wheat head infections.

The re-opening of the Horsham reception is reflected in the number of samples that were submitted from the Wimmera region (over 50%). This is consistent with samples submitted prior to 2020 reception closure due to COVID-19.

All Victorian lupin samples submitted to **CropSafe** during 2022 were negative for anthracnose.

Disease pressure was extremely high during the 2022 spring and several diseases caused significant concern including stripe rust and fusarium head blight in wheat, and *Botrytis* spp. and *Sclerotinia* in pulses. In some pulse crops severe infections resulted in total crop failure. Head/pod infections were of significant concern and there were a range of causes. Stripe rust was considered to be the main cause of damage in wheat however there were cases of *Fusarium* head blight and in rare instances *Septoria nodorum* was also detected in some crops. *Septoria tritici* and yellow leaf spot were also regularly identified in wheat heads, however these were not considered to cause as much damage. *Botrytis* grey mould and *ascochyta* blight pod infections in pulses were less severe, however, isolated cases of high seed infection levels may cause issues in 2023.

Fungicide resistance was a lesser issue of concern for agronomists during 2022. However, the Centre for Crop and Disease Management (Curtin University) continues to provide resistance testing services to the

grains industry. Sampling details and further information including the current fungicide resistances can be found here:

<http://ccdm.com.au/frg/>

For further information regarding fungicide resistance, visit the Australian Fungicide Resistance Extension Network at

afren.com.au

Percentage of samples submitted by each region

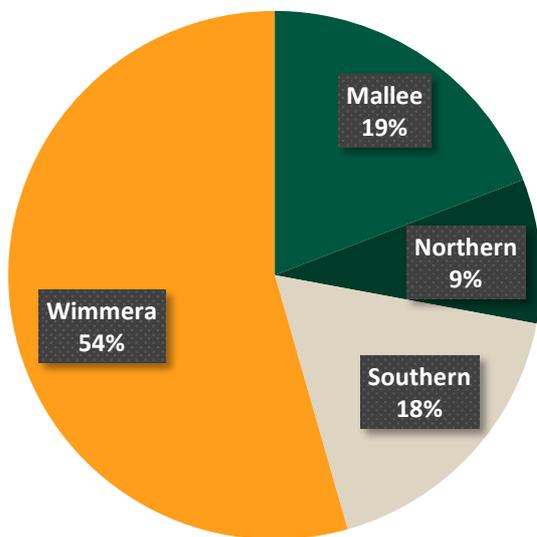


Figure 1: Percentage of samples submitted to **CropSafe** by region during 2022 (n=68).

Breakdown of crop types submitted to **CropSafe** during 2022

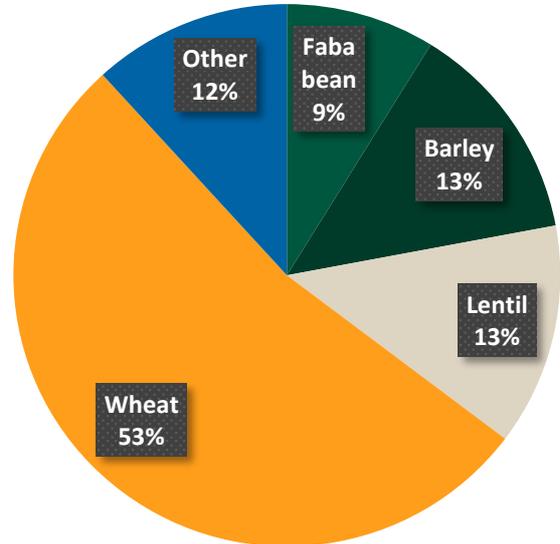


Figure 2: Percentage of crop types submitted to **CropSafe** during 2022.

Other crop types were: Lupins 4%, Canola 3%, Vetch 3% and Chickpea 1%.

Passive crop surveillance

The 2022 **CropSafe** general surveillance survey resulted in **CropSafe** agronomists reporting on just over 1.7 million hectares which is around 50% of the estimated 3.46 million hectares (ABARES '20-21 cropping estimates) of grain crop in Victoria (Table 1). Crops were inspected 3 to 7 times (averaging four times) during the growing season, depending on the crop type and scouting program required for crop pest and disease management.

Analysis of this data by the Victorian Chief Plant Health Officers Unit biosecurity branch, provides Victoria with confidence in the absence of key pests (listed in **Table 2**). The probabilities listed take into account the area surveyed, the likelihood that a specific pest will be detected and the number of years in which data has been reported. For pests that are readily identifiable by agronomists, such as American serpentine leaf miner, Maize leafhopper and Turnip moth, we have reached, and can maintain a high level of confidence (>95%) in their absence provided surveillance data continues to be collected and shared. For root and leaf diseases that are difficult to detect and diagnose, analysis of surveillance data over many years has allowed us to build up our level of confidence over time. In many cases, for instance lentil anthracnose and rust (Figure 2), we now have a high level of confidence the pest is absent from Victoria. For some pests, such as lupin anthracnose and Fusarium wilt of chickpea, our confidence is less, but with time, like the other pests, we can reach and maintain confidence in the states area of freedom.

By continuing to diagnose samples and collaboration with industry for general surveillance, **CropSafe** will continue to

deliver increased confidence in Victoria's Area of Freedom for these exotic pests and diseases.

Table 1: 2022 Passive crop surveillance inspection reported to CropSafe

Crop	Number of paddocks inspected	Hectares
Wheat	7,867	556,810
Barley	3,691	303,219
Oats	1,869	134,273
Triticale	51	3,425
Canola	4,634	314,971
Lentils	1,971	222,046
Vetch	1,036	103,831
Field pea	220	26,033
Faba beans	1,097	67,913
Lupins	295	31,116
Chickpea	54	10,080
TOTAL	22,785	1,773,717

Table 2: Probability of freedom for 2022 based on the area surveyed by CropSafe agronomists for Victoria's top exotic pests and diseases in broadacre agriculture.

Exotic pest/ disease	2022
American Serpentine Leaf Miner	0.974
Maize Leafhopper	1.000
Turnip Moth	1.000
Barley Stem Gall Midge	1.000
European Wheat Stem Sawfly	1.000
Cabbage Seedpod Weevil	0.994
Canola Verticillium Wilt	0.999
Fusarium Wilt of Canola	0.999
Fusarium Wilt of Chickpea	0.456
Barley Stripe Rust	1.000
Lentil Rust	0.998
Lupin Anthracnose	0.367
Lentil Anthracnose	0.947
Karnal Bunt	1.000

* Given design prevalence of 1:1000 plants and 1:1000 crops affected, and a 1:20 year chance of incursion

Area of Freedom Data

Thank you to the agronomists who provided details of passive crop surveillance for the 2022 cropping season. This critical information is an important component in the **CropSafe** program and assists the continuation of **CropSafe** services.

Surveillance information provides strong evidence that Victoria is free from exotic pests and diseases and can assist in maintaining and gaining market access.

Analysis of the surveillance statistics provided by **CropSafe** for all grain crops provides strong evidence of their health status (this can only be applied to exotics featured in the **CropSafe** manual and where we can be assured that participating agronomists are aware of these exotics and have had some level of training in their recognition).

It is recognised that the partnership with industry through **CropSafe** provides a breadth of crop health surveillance data and quality of disease freedom information, that cannot be achieved otherwise.

The sources of information to generate the area of freedom data remain anonymous.

For more information please contact Dale Boyd at Agriculture Victoria Echuca on 0417 339 804 or email dale.boyd@agriculture.vic.gov.au

2022 CropSafe findings

During 2021, 68 samples were submitted to **CropSafe** for suspected exotic pests and diseases. This number was lower than in 2021, and still lower than the average range. An average year sees between 100 and 200 samples submitted.

Endemic crop diseases caused 38% of the symptoms on the 2022 **CropSafe** samples submitted.

Wheat accounted for just over 50% of samples submitted and pulses made up almost 30% of samples (Figure 2). Canola samples were also low with only 3% of samples submitted.

The sample distribution was dominated by the Wimmera (54%), reflecting a shift back to pre-2020 norms.

FIELD CROP DISEASE VICTORIA

The aim of Field Crop Diseases Victoria (FCDVic) is to provide up to date, timely, and relevant information for endemic and exotic crop diseases to the Victorian grains industry. The website hosts 2 books '*The Victorian Guide to Exotic Pests and Diseases of Grain Crops*' and '*The Identification & Management of Field Crop Diseases in Victoria*'. The website also hosts current and historical CropAlerts as well as other useful crop disease information.

The FCDVic extensionAUS site had 15,558 users, 20,179 session and 29,963 pageviews between Jan 1, 2022, and Dec 31, 2022. Of the 20,179 page views, 1,678 were of the exotic pests and disease information hosted on the website. Visit extensionaus.com.au/FCDVic for pest and disease information.

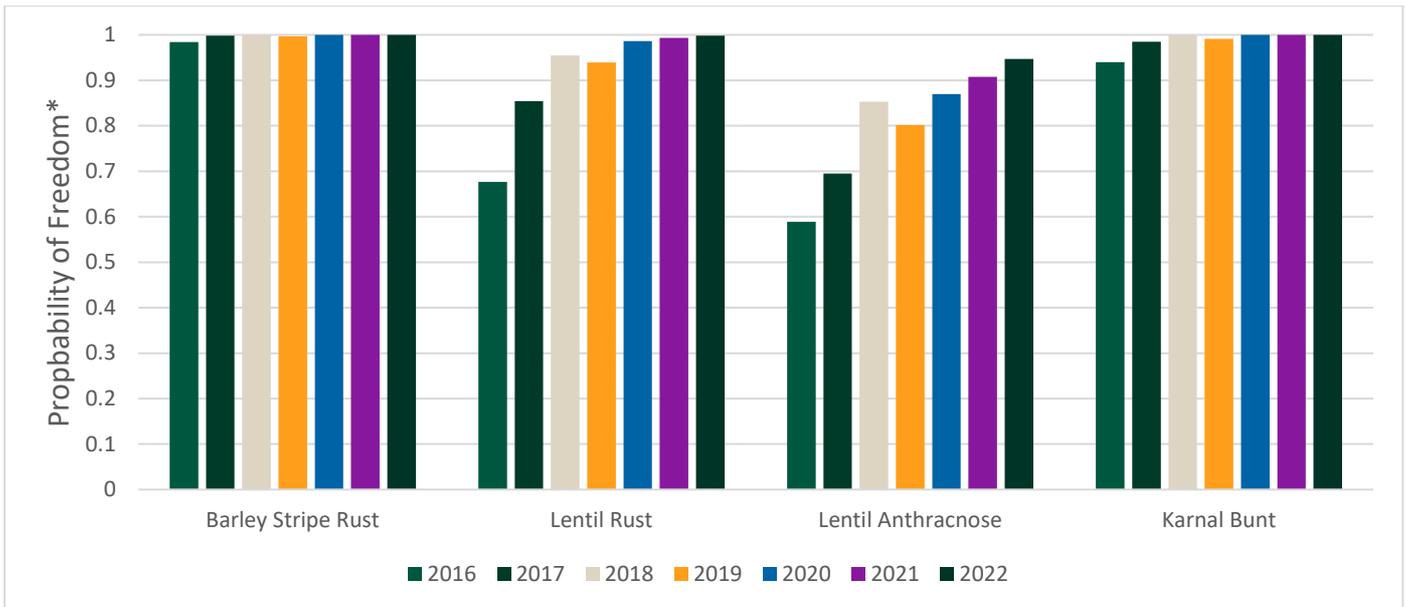


Figure 3: Change in the probability of freedom for barley stripe rust, lentil rust, lentil anthracnose, and karnal bunt based on the area surveyed by CropSafe agronomists since 2016.

* Given design prevalence of 1:1000 plants and 1:1000 crops affected, and a 1:20 year chance of incursion.

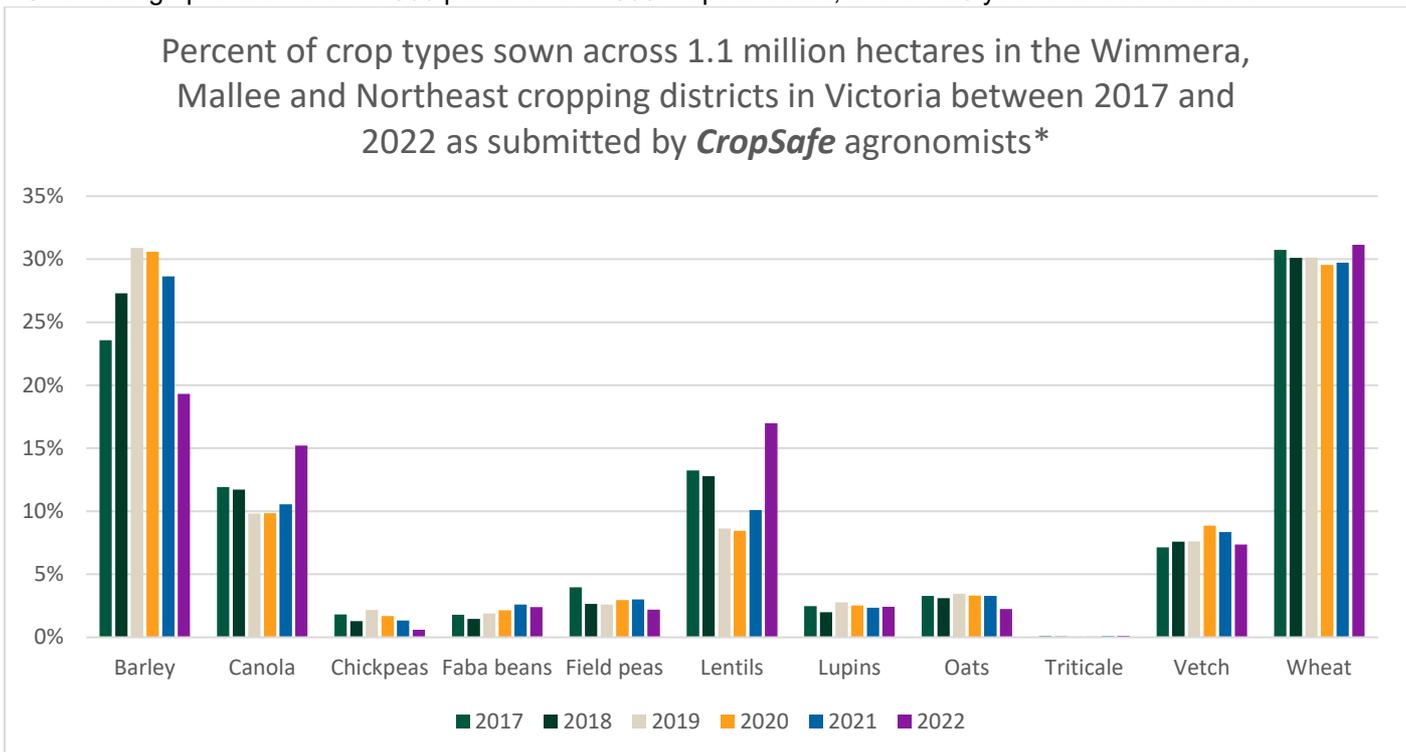


Figure 4: The percent of crop types shows the major trends in cropping area for different crop types across the Wimmera, Mallee, and Northeast districts.

*To maintain the consistency of cropping trends, only agronomists that submitted data for all years were included as part of this data set.

2022 CropSafe: Findings by region

The following pages are regional summaries of the CropSafe findings from 2022, outlining the pests and diseases that were detected in Victorian crops.



MALLEE

The Mallee region includes Buloke and Gannawarra shires and Mildura and Swan Hill rural cities.

13 samples were received by CropSafe from the Mallee region during 2022, down from 18 in 2021.

Wheat represented over 75% of the samples that were submitted. This reflected the season, and the amount of disease that was detected early in the season in wheat crops and the number of unusual symptoms that were observed during 2022.

Pulse crops surveyed by Agriculture Victoria research staff later in the season were, in some cases, severely affected by both botrytis grey mould and sclerotinia. This has not been captured in the CropSafe data, anecdotally because several farmers thought this was water logging, and because agronomists were well versed in identifying these 2 diseases and did not require assistance.

Table 3: Primary diagnosis of CropSafe samples submitted from the Mallee region (abiotic, non-pest or disease submissions are highlighted)

Diagnosis	Number of samples
Fusarium head blight (<i>F. pseudograminearum</i>)	3
Other – not exotic	1
Phoma black stem	1
Powdery mildew	1
Root lesion nematode	1
Sclerotinia	1
Septoria blotch	1
Stripe rust	1
Environmental	3

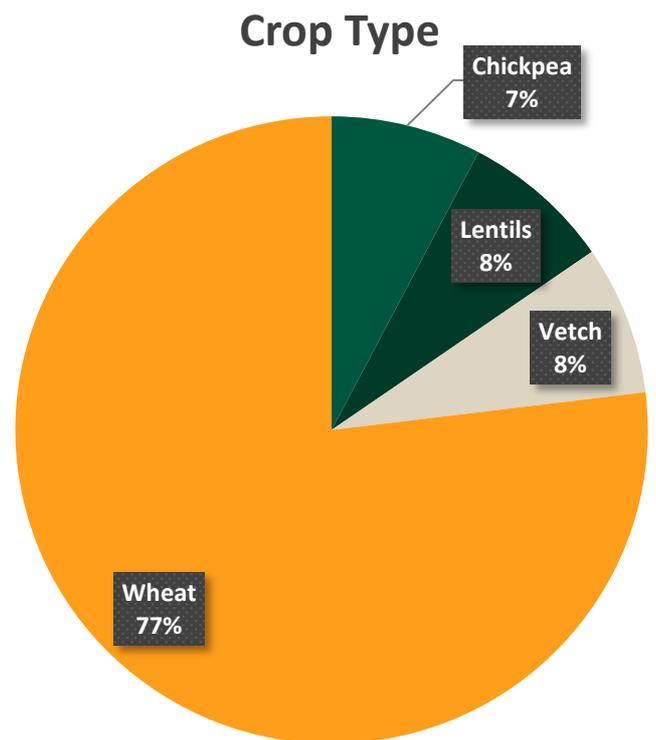


Figure 5: Crop type breakdown of samples submitted to CropSafe from the Mallee region in 2022.



WIMMERA

The Wimmera region includes the West Wimmera, Hindmarsh, Yarriambiack and Northern Grampians shires and Horsham Rural City.

In the Wimmera, 37 **CropSafe** samples were received during 2022, up from 25 during 2021.

Cereals made up 59% and pulses 41% (up from 43 % and down from 44% respectively in 2021). Plants were affected by a range of diseases but the most common was stripe rust, affecting 56% of wheat crops. Only 1 sample was affected by Fusarium head blight as the primary disease.

Crop Type

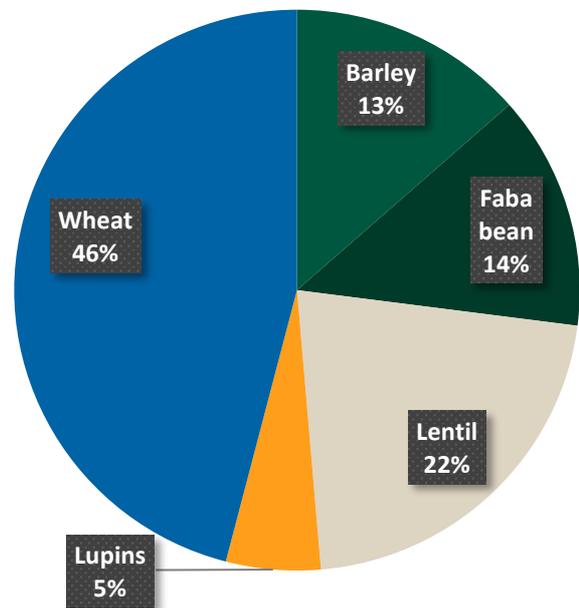


Figure 6: Crop type breakdown of samples submitted to **CropSafe** from the Wimmera region in 2022.

Table 4: Primary diagnosis of CropSafe samples submitted from the Wimmera region (abiotic, non-pest or disease submissions are highlighted).

Diagnosis	Number of samples
Stripe rust	9
Root rot (<i>Fusarium oxysporum</i>)	6
Sclerotinia	1
Cucumber mosaic virus	1
Fusarium head blight	1
Loose Smut	1
Net form of net blotch	1
Rhizoctonia	1
Rust	1
Sclerotinia	1
Septoria nodorum blotch	1
Physiological/environmental	13



SOUTHERN

The Southern region includes Glenelg, Southern Grampians, Moyne, Pyrenees, Corangamite, Colac-Otway, Golden Plains, Hepburn, Moorabool, Surf Coast, Cardinia, Baw Baw, Bass Coast, South Gippsland, Wellington and East Gippsland shires. Also included in the region is the Rural City of Ararat and the City of Greater Geelong, Ballarat, Latrobe and Melbourne.

A total of 12 samples were submitted to **CropSafe** from the Southern region during 2022, down from 15 in 2021. Wheat was the most common crop submitted and represented 50% of all samples received.

Net form of net blotch was the most commonly identified biotic disease in CropSafe samples from the southern region during 2022, however, a number of physiological (pseudo black chaff) symptoms were also diagnosed.

Table 5: Primary diagnosis of CropSafe samples submitted from the Southern region (abiotic, non-pest or disease submissions are highlighted)

Diagnosis	Number of samples
Net form of net blotch	2
Root rot	1
Sclerotinia	1
Septoria blotch	1
Environmental/physiological	7

Crop Type

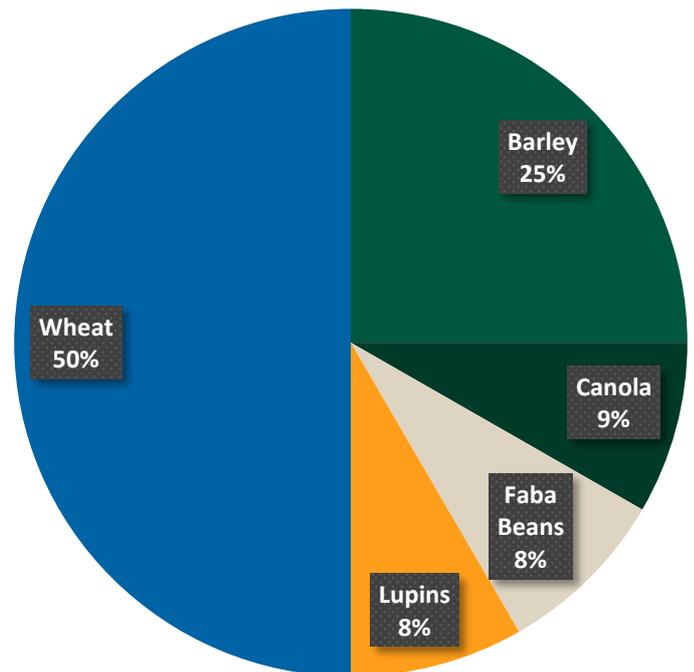


Figure 7: Crop type breakdown of samples submitted to **CropSafe** from the Southern region in 2022.



NORTHERN

The Northern region includes Loddon, Campaspe, Central Goldfields, Mount Alexander, Macedon Ranges, Mitchell, Strathbogie, Moira, Mansfield, Alpine, Indigo and Towong shires; the rural cities of Benalla, Wangaratta and Wodonga; and the cities of Greater Bendigo and Greater Shepparton.

In the Northern region, 6 samples were received by **CropSafe** during 2022, down from 20 in 2021. Wheat was the most commonly submitted crop type. These samples were submitted for a range of issues including stunting, wheat head symptoms, and loose smut of barley.

Only 1 sample was found to have Fusarium head blight.

Table 6: Primary diagnosis of CropSafe samples submitted from the Northern region (abiotic, non-pest or disease submissions are highlighted)

Diagnosis	Number of samples
Damping off	1
Fusarium head blight	1
Loose smut	1
Physiological/environmental	3

Crop Type

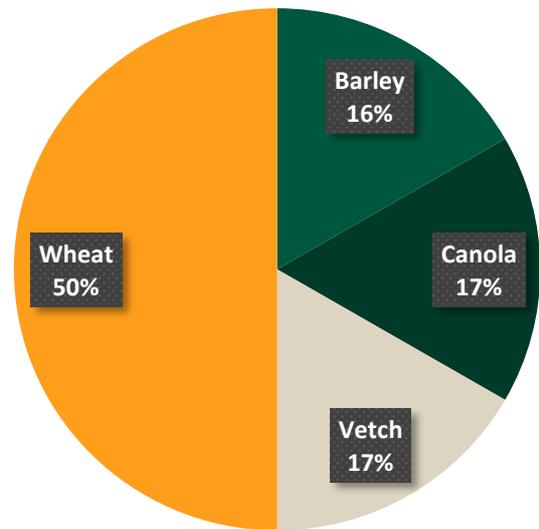


Figure 8: Crop type breakdown of samples submitted to **CropSafe** from the Northern region in 2022.

Further Information

SAMPLING REMINDER

When sampling, collect 2 to 3 plants with a range of symptoms. Please include roots plus a healthy sample for comparison. It is best to dig plants out, as pulling plants from the ground will damage the root system. Shake loose dirt from roots, wrap in moist paper and place in a sealed plastic bag. For pest specimens, place in a sealed jar along with pieces of host material.

Record all known information on the **CropSafe** submission form. Distribution of symptoms, paddock and chemical history are all vital to assist with prompt diagnosis. Keep samples away from heat and light before putting them in the mail. Please list your agronomist code on the submission sheet. If this is unknown, please contact the **CropSafe** team.

DISEASES OF CONCERN

Of particular concern to our cropping industry are exotic diseases (not presently found in Australia) including barley stripe rust, bunted cereals, rust on lentils or field peas, and wheat saw stem fly as outlined in the **CropSafe** manual.

Samples should be sent to:

CropSafe, Agriculture Victoria, Private Bag 260, Horsham, VIC 3401

For more information visit the [CropSafe](https://agriculture.vic.gov.au/crops-and-horticulture/grains-pulses-and-cereals/cropsafe-program) page: agriculture.vic.gov.au/crops-and-horticulture/grains-pulses-and-cereals/cropsafe-program or contact **CropSafe** coordinator, Luise Fanning at Agriculture Victoria Horsham on (03) 5450 8301 (Horsham reception).