

KANOLA / CANOLA

Webwerfopdatering/Website update

Februarie / February 2016

Die vorige opdatering is gedoen tot einde Maart 2015.

Hierdie opdatering strek van April 2015 tot einde Januarie 2016 en word binne die onderstaande breë raamwerk weergegee.

1. Canola Council of Canada
2. Aktiwiteite van saadmaatskappye in Kanada
3. Tendencies /Developments in canola oil quality / speciality oils / canola meal quality
4. Australian Oilseeds Federation
5. Activities of Australian Government Grains Research and Development Corporation
6. Universities and Research organizations in Australia
7. Aktiwiteite van saadmaatskappye in Australië.
8. Other matters of interest

1. Canola Council of Canada (CCC)

1.1 Canola Digest Science Edition 2015

"Results and highlights from grower-funded research projects. Also feature articles on Ultimate Canola Challenge, MB Pest Surveillance Initiative and ongoing 'Growing Forward 2' studies."

(A 56 page publication)

http://canolacouncil.org/media/573974/canola_digest_science_2015/index.html?_ga=1.168790177.1228529886.1452806035#56

or

<http://research.canolacouncil.org/> *and follow linkages to Canola Digest*

Dated: 2015

1.2 Questions about Canola Meal?

" As livestock nutritionists expand their ration formulation options to develop the best rations possible based on current research, many may have questions about canola meal as a protein ingredient.

These questions may include:

- What is the nutrient profile of canola meal?
- What is the recommended inclusion level for different species?
- How does the protein degradation of canola meal in the rumen impact milk production?

The answers to these questions, and more, can be found in the 5th edition of the "Canola Meal Feeding Guide," published by the Canola Council of Canada (CCC). Last updated in 2009, this comprehensive resource for nutritionists was recently updated ----- . Copies of the feed guide are available as a PDF online. Printed copies will be available at trade shows and by request. (*or Canola Meal Feeding Guide, Feed Industry Guide-5th Edition, 2015.* <http://canolamazing.com/wordpress/wp-content/uploads/2015/08/2015-Canola-Meal-Feed-Industry-Guide-8.2015.pdf>. Dated: 2015).

1.3 Dry Conditions and the Sclerotinia Spray Decision

"Moisture is the key risk factor for sclerotinia stem rot. Without moisture a couple of weeks before flowering and humidity during and after flowering, disease severity and the return on investment from fungicide will be lower than if moisture is present all through these periods. "Given the low moisture situation and lower canola yield potential in many areas of the Prairies, growers wonder if they need to spray fungicide to manage sclerotinia stem rot," -----". "It may be more of a last minute decision this year, requiring close attention to the risk during early flowering when fungicides are applied."

When yield potential is 30 bu./ac., or more, and when moisture — which can come from rain or just high humidity — is present in the canopy, the decision to spray is much easier. "Growers will often spray and see a return on investment in that situation,"-----.

Growers holding off on a spray with the lower rainfall this year will want to pay attention to conditions as they may change during flowering.

Moist soils and a humid canopy can lead to infection, even if rainfall is below normal. And even if soil is currently dry and the canopy is thin, a few rains at the start of flowering will get the apothecia germinating and plants filling in. In this case, spore dispersal could still occur within the application window of 20-50% bloom stage.

"Even though risk may have been significantly lower earlier, a few mid-season rains can completely change the risk forecast," -----.

Timing an application on an uneven stand

Frost, flea beetles and other stresses on stand establishment have left many canola fields at a wide range of stages. Some plants are flowering, some are just coming into bud and some are still at the five-leaf stage, for example. This makes it difficult to determine when to make a fungicide application.

"Assess a few small areas and look at 100 plants in each. Base fungicide timing on the group that represents the highest proportion of plants across the field," -----". "If half are flowering and half are just budding, this might be a situation for a split application — if conditions are right for disease development.

Consider the cost of the fungicide as well as application cost, then consider the potential yield benefit when making a decision."

<http://www.canolacouncil.org/news/dry-conditions-and-the-sclerotinia-spray-decision/>

Dated: July 13, 2015

1.4 How to prevent herbicide resistance

"Diversification is at the root of prevention. "The key is to outsmart weeds by applying different products, using them at different times of the year, and using crop rotation — including winter crops that provide cover and competition in the fall and spring," -----.

The following tactics are most effective when used in combination: (a short discussion under each of the following headings):

Control weeds early

Rotate herbicide groups

Use crop rotation to your advantage

Use tank mixes

Use the right herbicide at the right rate and apply at the right time

Control weeds throughout the season

Use integrated weed management (IWM)

For more on weed management, see the weeds section in the Canola Encyclopedia at www.canolacouncil.org/canola-encyclopedia. For other things to look for while scouting early in the

season, go to www.canolawatch.org and search for the article, "The critical first 21 days. ".

<http://www.canolacouncil.org/news/time-for-a-suspicious-weed-take-down/>

Dated: May 1, 2015

1.5 The Bottom Line on Canola Seeding Rates

"Seven to 10 plants per square foot emerged uniformly. That's the target. That's the ultimate goal with canola stand establishment.

A simple straightforward approach is to stick with the common seeding rate of 5 lb./ac. That rate often produces enough plants per square foot to maintain yield potential and is easy to remember," Trimming rates below that standard tends to miss the target plant stand — and thin stands mean lower profits."

" Hybrid canola studies show that stands of three plants per square foot yield around 80 percent of stands with five or more plants per square foot. "Shaving the seeding rate from 5 lb./ac. to 3 lb./ac. may save \$20 per acre, but if yield drops by 20 percent — say to 32 bu./ac. from 40 — that chops revenue per acre by \$80," ----- . Targeting seven to 10 per square foot allows for some plant loss during the season so harvest counts remain at or above this critical five-per-square-foot threshold.

Second, thin stands tend to mature later. Each plant in a thin stand will have more branches, which means seed maturity on later branches will be well behind the main stem. "Harvest timing for this crop is much more difficult,----- . "-----a thinner stand takes longer to mature, ----- also increases the risk for frost and green seed." It only takes two percent green seed to drop to a No. 2 grade ----- .

Thin stands tend to require more inputs to keep those few plants alive and competitive. "With a thin stand, canola is more likely to need protection from flea beetles, cutworms or whatever else comes along,"----- . "The cushion that a healthy stand provides just isn't there." With fewer plants, the canopy takes longer to fill and can't compete strongly with later weed flushes. This may increase the need for a second in-crop herbicide application. Thin stands can also make the sclerotinia stem rot spray decision more difficult. Large leafy plants with many branches are still at risk from sclerotinia stem rot. More branches mean a longer flowering period, which may increase the need for a split fungicide application."

A more refined seeding rate

Growers who want a precise seeding rate that hits the seven- to 10-plant target will tweak the five-pound rate based on thousand seed weight (TSW) and on seeding conditions. Seed lots with a higher TSW have fewer seeds per pound, and therefore more pounds per acre are needed to achieve the target stand.

As for seeding conditions, emergence rates tend to be much higher in warm and moist soils.

"Growers may want to seed at a higher rate in cold soils, high-residue fields or other situations that reduce seed survival, then seed at a lower rate on fields with excellent emergence expectations," ---- .

Other factors that can increase seed survival are: (a short description given under each heading)

Seed shallow.

Seed at a consistent depth.

Seed at the right speed for accurate placement

Limit seed-placed fertilizer

Penetrate residue

Leave a firm seedbed

Pack appropriately

For more on adjusting seed rates based on thousand seed weights (TSW), read this section of the Canola Encyclopedia. For more on tips to improve seed survival, watch the new video “Canola Stand Establishment: A Grower Q&A.”

<http://www.canolacouncil.org/news/the-bottom-line-on-canola-seeding-rates/>:

Dated: April 15, 2015

2. Aktiwiteite van Saadmaatskappye in Kanada

2.1 DuPont Pioneer

2.1.1 46M34

The First Genuity Roundup Ready canola hybrid with the built-in Pioneer Protector HarvestMax trait for resistance to pod shatter and pod drop. This canola hybrid gives growers the option to swath layer or straight cut their canola. It has excellent early growth and yield potential along with very good standability.

Protector Plus (Number TBD)

The First and only Genuity Roundup Ready canola hybrid with both Pioneer Protector sclerotinia and clubroot resistance traits built right into the seed. This canola hybrid also has excellent early growth, improved standability and excellent yield potential. It is also rated R for blackleg.

2.2 Bayer CropScience

2.2.1 New stacked trait canola to take on tough weeds

"Bayer has re-leased a few more details about its new stacked trait hybrid canola variety that combines LibertyLink and Roundup Ready Genius traits in the same seed.

The company officially launched its first InVigor Choice variety, LR250, Jan. 22.

It's the first canola variety to offer resistance to Liberty, a Group 10 herbicide, and glyphosate.

The dual resistance will give farmers better post-emergent weed control options.

Bayer's dual resistant hybrid will be limited to about 100,000 acres this year with full release in 2017."

<http://www.producer.com/2016/02/new-stacked-trait-canola-to-take-on-tough-weeds/>

Dated: February 4, 2016

2.2.2 Bayer looks ahead to the future

"Bayer CropScience's CEO says its product range and focus on research drives success.

-----cited Velum Total, a new Bayer insecticide/nematicide available to U.S. farmers. This product,----- "starves nematodes of oxygen and thus gets rid of the pest."

Bayer invests about \$1 billion every year in research and development," -----. In 2015, Bayer has brought five new products to the U.S. ag market. Between 2016 and 2022, ----- "we are expecting to bring 25 new solutions to the marketplace." These will include chemical solutions as well as biologicals.

<http://www.grainews.ca/2015/10/16/bayer-looks-ahead-to-the-future/>

Dated: October15, 2015

2.3 Dow-DuPont to form three businesses

"A merger of Dow and DuPont will create a giant with a market capitalization of \$130 billion and result in cost cutting of \$3.1 billion.

Dow and DuPont announced the merger Dec. 11, which will result in three independent businesses: agriculture, material science and specialty products.

A merger fact sheet said DuPont and Dow's agricultural divisions generate \$11 billion and \$7 billion in revenue, respectively. Combining the two operations will save \$1.3 billion in the form of synergies.

<http://www.producer.com/2015/12/dow-dupont-to-form-three-businesses/>

Dated: December 17, 2015

2.4 DuPont Pioneer

2.4.1 116 bushel canola in Saskatchewan

"The winner of DuPont Pioneer's 2015 Yield Challenge Contest harvested a whopper of a canola crop that weighed in at 116 bushels per acre.

Florian Hagmann, who farms about 16,000 acres near Birch Hills, Sask., won the challenge for the third time in four years with his non-irrigated 148 acre field of Pioneer 45H33 canola.

Click here to download the Hagmann-canola-formula or read it at the end of this story.

<http://www.producer.com/2016/01/116-bushel-canola-in-saskatchewan/>

Dated: January 21, 2016

2.5 BASF

2.5.1 Obvius® fungicide seed treatment from BASF receives registration

"Obvius® fungicide seed treatment from BASF received full Environmental Protection Agency (EPA) registration for use on pulse, podded vegetables and canola. State registrations are forthcoming.

"This is the newest tool from BASF to help growers get their season off on the right foot," -----.

"With three unique modes of action, it provides broad spectrum seed and seedling disease control from the start."

Powered by Xemium® fungicide and F500® fungicide, the same active ingredients found in Priaxor® fungicide, as well as metalaxyl, Obvius fungicide seed treatment helps provide seedling disease control pressure often found in areas where pulse, podded vegetables and canola are grown.

Research field trials in 2015 showed that applying Obvius fungicide seed treatment can result in more rapid and increased emergence, long-term residual disease activity and improved seedling health. Troublesome seedling diseases it controls include Ascochyta blight, Pythium, Fusarium, Rhizoctonia, Botrytis and others.

Obvius fungicide seed treatment will be available to pulse, podded vegetable and canola growers for the 2016 season "

<http://www.agproducts.basf.us/news-&-events/press-releases/current-press-releases/2015-obvius-fungicide-seed-treatment-from>

Dated: August 16, 2015

2.6 Syngenta

Syngenta Canada Inc. has launched of Exempla, a new fungicide designed to help canola growers in Western Canada manage sclerotinia stem rot -----.

Exempla is a liquid, pre-mix formulation that delivers both preventative and curative activity via two modes of action – difenoconazole (Group 3) and azoxystrobin (Group 11) – and is also part of an effective resistance management strategy.

Growers can also take advantage of the fungicide's flexible application timing, which supports spraying by ground or air between 20 per cent and 50 per cent flowering

In large-scale field trials conducted by Syngenta, Exempla proved to have very good activity on sclerotinia under a variety of conditions and disease severities.

In addition to sclerotinia control, Exempla is also registered for control of blackleg and alternaria black spot -----.

Exempla will be available for purchase in spring 2016.

To learn more about Exempla fungicide, visit the Exempla product page

<http://www.agannex.com/field-crops/syngenta-launches-exempla-fungicide-for-sclerotinia-control>

Dated: November 17, 2015

3. Tendencies /Developments in Canola Oil Quality/ Speciality Oils /Canola Meal Quality

The subject of research on the website of the CCC is comprehensive and the projects supported reflects the type of developments that can be expected.

This information can be accessed from the CCC website by opening ' Research' and then 'Strategy and Partnerships' on the menu.

3.1 Human Nutrition

"Canola is the healthiest vegetable oil available today. The Canola Council recently asked leading scientists from across Canada and the U.S. how we could build on this advantage through canola oil research. Here are the priorities they identified:

Heart Health

Canola's low saturated fat content has long been accepted as beneficial for heart health, and it has an established positive effect on blood lipids.

----- interest in blood lipids as a risk factor is falling rapidly. There is increasing interest in markers of inflammation, oxidation and endothelial function. The effect of canola oil on these emerging risk factors is most likely favourable, but is not well documented.

Preliminary clinical trials are underway, but further research is needed - particularly regarding canola oil's positive effects on inflammation and vascular function.

Diabetes

Inflammation was recently implicated as a significant cofactor in development of type 2 diabetes. Canola oil may improve patients' ability to manage the disease through diet because of its effects on inflammation, glycemic index and insulin resistance. Proof of concept work is underway, but detailed clinical studies are required.

Conversion and direct benefits of ALA

Although fish is considered the main source of essential omega-3 fatty acids, canola oil is also an excellent source. There are questions about the ability of human metabolism to absorb and elongate plant-based ALA into DHA, which is thought to be the more important form.

Preliminary investigations suggest this conversion is not very efficient, but it is not known whether this means ALA is not important in the human diet. Epidemiological evidence shows ALA has dramatic heart health benefits, and preliminary research suggests ALA has unique postprandial vascular benefits, independent of its conversion to DHA. More research is needed in this area, as well as in the methodologies used to measure conversion and accumulation of ALA, and the role of ALA in reducing inflammation.

See related projects

When opening this site it gives the following:

Projects now underway are increasing our knowledge of how canola can help to improve heart health and manage problems like diabetes and obesity.

Projects underway

Canola and flax oils in modulation of plasma lipids and other markers of heart disease risk

Effects of canola oil fatty acid composition on insulin resistance and obesity
Effect of canola oil as part of a low glycemic load diet on glucose control and coronary heart disease risk factors in type 2 diabetes
Effects of canola oil on blood vessel function in peripheral arterial disease (PAD)
See the Canola Oil Research Directory

3.2 Functionality

We can build on the growing public demand for healthy products by helping the food industry use canola oil to reformulate products. Research in this area helps to diversify food markets for canola oil and potentially creates opportunities for more "designer" oils. These are the research priorities related to food uses:

Oxidative stability

This factor affects both shelf life and fry life. One major area requiring investigation is the impact of processing techniques and conditions on oil quality, especially oxidative stability.

High value components

Research has already identified several high value components in canola oil, including anti-oxidants and phytosterols. More study is needed to identify other high value fractions, develop methods for extracting these products, and understand their impact on human health.

Altered fatty acid profiles

New oil profiles can add a new dimension to the demand for healthy canola products. The market's response to new high-stability canola oil shows that modifying the fatty acid profile can significantly improve functionality and demand for canola in certain markets. Further development of altered fatty acid profiles could add significant value through enhanced human health and nutrition, development of nutraceuticals and expanded functionality.

See related projects

Meal Quality

To compete, it will be important to increase inclusion rates of canola meal and build on the nutritional value of the product.

Metabolized energy content

Three main areas are priorities for research:

Breeding new varieties with reduced fibre content and/or increased digestible carbohydrate content

Alternate processing technology - such as vacuum-assisted desolventization or reduced processing temperature - to reduce damage to meal, particularly in the toasting phase

Enzyme additives, either after processing or in feed processing, to break down fibre components and yield a higher metabolized energy

Impact of high inclusion rates

New research is needed to understand the impact of high canola meal inclusion rates on feed efficiency and carcass quality, and the accumulated effects of anti-nutrient components like glucosinolates, sinapines, tannins and phytate.

Aquaculture

Research is needed to understand the potential role for canola oil and meal in this growing, high-value market. Preliminary studies suggest canola meal is a promising feed component and that the fibre content does not pose a problem in fish diets.

Extracting high value components from canola meal

There are exciting opportunities to significantly improve the value of canola meal while providing ingredient sources for food, feed and pharmaceutical manufacturers. Research is already underway to identify potential commercial products - like bioactive peptides and protein isolates - and extract them from canola meal. More research is needed to identify further high-value components, develop extraction protocols and confirm their utility in human, animal or processing systems.

Production

Higher yields will be needed to meet the canola industry's production target of 52 bushels per acre by the year 2025. The industry has identified these priorities for production research.

Improve yields

There is significant private and some public investment in development of high-performance genetics. Public investment is important to sustain yield improvements for the industry overall and to provide important germplasm and trait development pipelines that are used by private breeding companies. There is also a serious need for research into agronomic practices that will help growers make the best use of these new canola characteristics. Research is required to identify the correct and most profitable production practices in a wide range of environments.

Protect yield potential through abiotic stress tolerance

Drought, frost, heat and other stress factors continue to be the number one cause of reduced yields. Stress-tolerant traits need to be developed so that the crop is more productive in areas prone to these conditions.

Expand range of adaptation

Research is needed into cultivars that allow canola to be grown over a wider area - for example:

Varieties with improved maturity for the early season zone

More drought and heat tolerance through products like Brassica juncea for the brown and dark brown soil zones

More cold-tolerant winter canola varieties for several regions

Improve disease and insect resistance

The industry needs new cultivars, products and practices to reduce these pest pressures:

Clubroot: This is a top priority for the industry because there are currently no clubroot-resistant canola products in Canada. Growers and industry are funding research into the disease and the development of resistant germplasm, but more needs to be done in this area.

Blackleg: This disease continues to be a major factor in canola crop management. Rotations and resistant genes have resulted in pathogenicity changes that need to be better understood. New resistant genes must be identified and deployed in future cultivars.

Click here to read the [Blackleg Strategic Plan in Canada](#) (PDF), December 2013

Sclerotinia: This is perhaps the most economically significant canola disease in Canada. New chemistries are being introduced for control, but the industry needs more consistent, longer-term solutions such as genetic resistance or avoidance in future cultivars.

Beneficial insects: Research can help the industry identify beneficial insects and the management practices that favour their development. We also need to understand how they affect economic thresholds for control. Some public sector and grower-funded research into beneficial insects is underway.

Improve sustainability

New traits such as nitrogen use efficiency (NUE) or water use efficiency (WUE) are already in development. Many approaches require more investigation to ensure successful products get into growers' hands.

Introduce shatter tolerance

Improved tolerance to shattering would reduce yield losses, enable straight cutting of canola, increase oil content and decrease chlorophyll content. Development of shatter-tolerant cultivars is already underway in both private and public research programs. However, a variety with improved shatter tolerance is not yet available to growers.

Reduce chlorophyll content

The industry needs a better understanding of the pathways involved in reducing chlorophyll content so that lower chlorophyll varieties can be developed.

[See related projects](#)

4. Australian Oilseeds Federation (AOF)

4.1 2015 AUTUMN BLACKLEG MANAGEMENT GUIDE FACT SHEET QUANTIFY THE RISK, PADDOCK BY PADDOCK

"Blackleg is a sexually reproducing pathogen that will overcome cultivar resistance genes. Fungal spores are released from canola stubble and spread extensively via wind and rain splash. The disease is more severe in areas of intensive canola production."

"Blackleg can cause severe yield loss, but can be successfully managed. Use this guide to determine whether you are in a high-risk situation and what practices you can change to reduce or prevent yield loss from blackleg."

KEY POINTS

- Monitor your crops in Spring to determine yield losses in the current crop.
- Choose a cultivar with adequate blackleg resistance for your region.
- Never sow your canola crop into last year's canola stubble
- Relying only on fungicides to control blackleg poses a high risk of fungicide resistance.
- If your monitoring has identified yield loss and you have grown the same cultivar for three years or more, choose a cultivar from a different resistance group

Follow the four steps, in sequence, below:

STEP 1: Use Table 1 to determine your farm's blackleg risk

STEP 2: Determine each crop's blackleg severity in Spring

STEP 3: Management practices can reduce the risk of blackleg infection

STEP 4: Blackleg resistance groups

Refer to this 5 page pdf document for detailed disease management information.

http://www.australianoilseeds.com/__data/assets/pdf_file/0015/10437/GRDC_Blackleg_Management_Guide_-_Autumn_2015.pdf

Dated: 2015

4.2 Quality of Australian Canola

"Australian Canola is recognised and highly sought after around the world for its consistent high quality. Australian exporters promote the quality benefits of Australian canola seed, oil and meal which enables them to differentiate their product in a commoditised market place.

Each year the AOF, in conjunction with the NSW DPI, publishes 'The Quality of Australian Canola', which provides a detailed breakdown of key canola quality attributes from the most recent harvest.

Measures of oil, protein, glucosinolate levels and fatty acid breakdown are recorded by primary receival site and/or port zone, and weighted to give a state and national average. Measures of oil, protein and glucosinolate levels by variety from the prior year National Variety Trials (NVT) are also provided.

Quality of Australian Canola - 2014/15

Table 2: Average quality of Australian canola 2014

Quality Parameter	Australian Mean
Oil content, % in whole seed @ 6% moisture	44.1
Protein content, % in oil-free meal @ 10% moisture	38.8
Glucosinolates, µmoles/g in whole seed @ 6%moisture	6
Volumetric grain weights, lbs/b	54.2

	kg/hL	67.5
Oleic acid concentration (C18:1), % in oil		63.7
Linoleic acid concentration (C18:2), % in oil		17.9
Linolenic acid concentration (C18:3), % in oil		9.3
Erucic acid concentration (C22:1), % in oil		< 0.1
Saturated fatty acid concentration, % in oil		7.5
Iodine Value		111.3

http://www.australianoilseeds.com/__data/assets/pdf_file/0012/10416/Quality_of_Australian_Canola_2014-15.pdf

Dated: April 2015

4.3 Seed quality: What are the risks of retained canola seed?

"With increasing pressure on farm input costs, farmers and those advising them may overlook the significant pitfalls in seeking to cut corners and long-term risks with retained seed.

The concerns with retained seed in canola are based on recognition of key trends towards an intrinsic reliance on growing Triazine tolerant (TT) canola (estimated at 67 percent of the planted canola area) and a very high level of retaining seed particularly in the TT market segment (estimated at over 80 percent)

The concerns with retained seed from a farmer's perspective include:-

Researchers have demonstrated the effects on canola performance of using other than first-generation seed from genetic drift, lack of trait purity impacting crop safety of herbicide-tolerant varieties and/or loss of hybrid heterosis benefits;

Uncertainty in seed quality with most farmers failing to test purity and germination on retained seed for sowing;

Reduced seed viability and vigour as a result of poor seed storage hygiene, leading to significant risk of establishment failure and lower yield;

Using seed for planting crops that may be contaminated with pests or disease (e.g. sclerotes) and create risk of transferring herbicide resistance onto and across the farm;

Limiting scope for further productivity gains through investment in hybrid breeding and technology innovation;

Added risk of not meeting grain quality contract specifications to secure price premiums and evolving requirements (e.g. EU RED certification) from key market."

The article further calculates a ' Net Return (commercial hybrid seed) = \$97.00/ha advantage over retained seed ' as well as discussing further industry benefits of using commercial seed.

http://www.strikepointpioneer.com/the_risks_of_retained_canola_seed/

Dated: January 13, 2015

5. Activities of Australian Government Grains Research and Development Corporation (GRDC)

5.1 Break the between-season bridges for pests and diseases

"Destroying the green bridge of weeds and volunteer crops during summer is a key tactic for reducing aphid and virus risks to canola plantings in 2016.

Weeds such as wild radish, wild turnip and marshmallow and volunteer canola plants can host big populations of insects, including aphid vectors for viruses, and should be controlled in the lead-up to sowing.

----- western region growers should particularly monitor infestations of green peach aphids (GPA – *Myzus persicae*) in coming months, especially after significant rainfall events.

----- GPA contributed to a costly outbreak of Beet western yellows virus (BWYV) in southern Australia in autumn-winter 2014 that significantly reduced canola crop yields.

“GPA is the principal vector of BWYV and typically the most common aphid species that affects seedling canola plants,”-----.

There is a GRDC 'Crop Aphids Back Pocket' Guide to help identify aphids that can be found here and the GRDC GrowNotes 'Reducing Aphid and Virus Risk 'Tips and Tactics'' resource can be found here.'

<https://www.grdc.com.au/Media-Centre/Media-News/West/2016/01/Break-the-between-season-bridges-for-pests-and-diseases>

Dated: January 22, 2016

5.2 Fungicide tolerance found in blackleg populations

"With the support of the Grains Research and Development Corporation (GRDC), the National Canola Pathology Program has this year tested 200 canola crops from across Australia to determine if the blackleg fungus has developed tolerance to the fungicide fluquinconazole (such as Jockey®). Of the 200 samples, 62% showed no tolerance, 23% showed low tolerance and 15% showed tolerance

<https://www.grdc.com.au/Media-Centre/Media-News/National/2015/11/Fungicide-tolerance-found-in-blackleg-populations>

Dated: November 4, 2015

5.3 Time to open the herbicide resistance toolkit

"Harvest weed seed control (HWSC) is one of the best tools in the kit to help growers combat the rapidly-increasing challenge of herbicide resistance.

Herbicide resistance poses a major, if not the major, threat to the long term viability of the northern grains industry with resistance issues across a multitude of weed species and modes of action.

Its management is a key investment area for the Grains Research and Development Corporation (GRDC) which is funding trial work into the extent of herbicide resistance to weed types and multiple modes of action; the effectiveness of non-herbicide tactics in suppressing weed growth and driving down the weed seed bank; and integrated weed management programs.

HWSC plays an important non-chemical role in stopping weed seeds from entering the soil and can dramatically reduce the emergence of hard-to-kill weeds in the following season. Chemicals alone will not control herbicide resistant weeds, other management tactics need to be employed to drive numbers down.

It involves collecting, destroying or burning weed seeds that are present at harvest and is particularly effective in problem species such as black oats, wild radish and annual ryegrass.

Windrow burning is a cost effective, non-chemical HWSC tactic that has been widely and successfully adopted in Western Australia and is being increasingly used by northern growers. Done well, windrow burning can kill 99% of wild radish and annual ryegrass seeds.

There is a wealth of practical information on windrow burning available through the GRDC, GOA and Australian Herbicide Resistance Initiative websites and YouTube channel.

<https://www.grdc.com.au/Media-Centre/Media-News/North/2015/11/Time-to-open-the-herbicide-resistance-toolkit>

Dated: November 2, 2015

5.4 Well-timed spray can minimise sclerotinia losses

“Yield reductions from this disease, when uncontrolled, can be as high as 30 to 40 per cent – or up to 0.5 to 1 tonnes per hectare – in heavily infested crops in high rainfall years,” -----.

Dr Khangura said research funded by the Grains Research and Development Corporation (GRDC)

had shown that fungicides applied to canola crops at the 20 to 30 per cent flowering stage were usually most effective in reducing yield losses-----.

----- to spray their paddocks at this stage of flowering if there is a history of sclerotinia in their paddock or adjacent paddocks,” -----.

“A single fungicide spray can usually reduce canola yield losses from sclerotinia when applied at the right time.

“In some districts with a history of high levels of sclerotinia and high crop yield potential, two fungicide applications may be cost effective.”

----- research had revealed that controlling sclerotinia using registered fungicides consistently increased crop yields in areas with high disease pressure.

Information about high risk situations and conditions conducive to outbreaks is available in the GRDC Fact Sheet Sclerotinia stem rot in canola.

----- and generally infects only a fraction of plants that are present in close proximity to the sclerotes.”

Additional information about sclerotinia is available in the GRDC Back Pocket Guide Diseases of canola and their management and by searching ‘sclerotinia’ on the DAFWA website. The innovative use of electromagnetic (EM) technology is enabling Moree district cropping manager Byron Birch, Rimanui Farms, to proactively manage his production risk by accurately matching crop selection with soil moisture availability.

<https://www.grdc.com.au/Media-Centre/Media-News/West/2015/08/Well-timed-spray-can-minimise-sclerotinia-losses>

Dated: August 4, 2015

5.5 New canola packages delivered to growers

"Research is delivering agronomic packages to Western Australian growers so they can optimise the performance of canola – a valuable break crop.

Grains Research and Development Corporation (GRDC) program manager Tom Giles said the ‘Tactical Break Crop Agronomy’ project was helping growers manage risk in low and medium-rainfall areas.

“Co-funded by the GRDC and the Department of Agriculture and Food (DAFWA), it has delivered tools such as a canola seeding rate calculator and nitrogen guidelines which can aid decision making at key times,”-----.

In 2015, experiments were expanded to include:

agronomic considerations of growing F2 hybrids in low-rainfall areas

the impact of wider (50-centimetre) row spacing

precision seeding

aphid management

tolerance of canola varieties to residual cereal herbicides and in-crop herbicides

very late nitrogen timing in high-rainfall areas

aluminium tolerance of canola varieties

time of sowing in the Geraldton Port Zone

suitability of varieties to direct and delayed harvesting

canola phenology

More information about the project and other GRDC-funded canola research is contained in the GRDC Supplement Optimising Canola Profitability and included in the July-August edition of GRDC’s magazine Ground Cover."

<https://www.grdc.com.au/Media-Centre/Media-News/West/2015/07/New-canola-packages-delivered-to-growers>

Dated: July 27, 2015

5.6 Research probes profitability of canola systems

"As canola production spreads into lower rainfall areas from its traditional high rainfall heartland, an important grower decision is whether to grow hybrid or open pollinated (OP) canola varieties. Hybrid canola is more vigorous and competitive against weeds, and can yield up to 20 per cent more than OP varieties, but is a more expensive system due to significantly higher seed costs.

Research funded by the Grains Research and Development Corporation (GRDC) suggests that hybrid varieties can be more profitable than OPs in medium and high yielding environments, but OPs tend to be more profitable in lower yielding areas."

<https://www.grdc.com.au/Media-Centre/Media-News/West/2015/06/Research-probes-profitability-of-canola-systems>

Dated: June 29, 2015

5.7 New manual offers advisers a wealth of herbicide knowledge

"A new pre-emergent herbicide manual focusing on herbicide behaviour in soil is providing grains advisers across Queensland and New South Wales with the background science to effectively control problem weeds and tackle the on-going challenge of herbicide resistance.

Commissioned by the Grains Research and Development Corporation (GRDC), the new manual 'Soil behaviour of pre-emergent herbicides in Australian farming systems - a reference manual for agronomic advisers', covers critical information needed to optimise results from pre-emergent herbicides.

The manual is available as a download on the GRDC's website.

<https://www.grdc.com.au/Media-Centre/Media-News/North/2015/06/New-manual-offers-advisers-a-wealth-of-herbicide-knowledge>

Dated: June 23, 2015

5.8 Plan for pre-emergent herbicide success

"The increased use of pre-emergent herbicides and zero till cropping in the northern cropping belt has focussed the spotlight on planting management as growers look to maximise herbicide efficacy and minimise costly crop damage.

Pre-emergent herbicides typically have more variables that can affect efficacy than post-emergent chemistries and if not applied strategically, can result in poor crop emergence.

Minimising crop damage requires an understanding of crop seeding depth, where the herbicide is positioned in the soil, soil type including the amount of organic matter and crop residue on the surface, herbicide solubility and its ability to be bound by the soil.

The Grains Research and Development Corporation (GRDC) is supporting a number of research programs focussed on generating a greater understanding of pre-emergent cereal herbicides, their interaction with seeder type and soil type and the resulting implications for weed kill and crop safety. Research associate from the University of Adelaide's School of Agriculture, Food and Wine, Dr Sam Kleemann told advisors and growers ----- that the physical separation of crop seed and herbicide was imperative if crop damage was to be avoided.

<https://www.grdc.com.au/Media-Centre/Media-News/North/2015/04/Plan-for-preemergent-herbicide-success>

Dated: April 29, 2015

5.9 Tips and tools for managing sclerotinia in 2015

"Key points

Management strategies to help control sclerotinia stem rot in 2015:

Clean or grade any retained canola crop seed from last season showing signs of Sclerotinia sclerotiorum (or sclerotia) fungus - or use new clean seed

Avoid planting canola on or near paddocks that have had high sclerotinia levels in the past three years
Use non-host break crops, such as cereals, field peas and faba beans, on high risk paddocks
Use recommended canola sowing dates and rates for the district
Have foliar fungicides on-hand and ready to apply at optimum flowering stage (20-30 per cent flowering or 50 per cent flowering when epidemics are late) .

Latest information stemming from GRDC-funded pioneering epidemiology and disease management research work carried out by the Department of Agriculture and Food (DAFWA) show these risks are based on:

Crop rotation history

Disease incidence in the last affected crop

Distance from 2014 affected crops

Weather factors leading up to the production of apothecia

Percentage of petal infection

Conditions favourable for stem infection.

The article discusses further management of the disease.

<https://www.grdc.com.au/Media-Centre/Media-News/West/2015/04/Tips-and-tools-for-managing-sclerotinia-in-2015>

Dated: April 28, 2015

6. Australian Universities and other Research Organizations

6.1 University of Western Australia

6.1.1 Study finds glyphosate-resistant canola unlikely to become invasive, escaped seeds easily controlled

"West Australian scientists say escape of genetically modified herbicide-resistant seeds into native bushland and roadsides can occur, but it is an easily manageable situation.

Publishing in the journal Agriculture, Ecosystems and Environment, the University of Western Australia's Australian Herbicide Resistance Initiative's Professor Stephen Powles and Dr Roberto Busi studied populations of escaped seeds."

<http://www.abc.net.au/news/2016-01-19/escape-of-gm-seeds-into-the-environment-study/7097694>

Dated: January 20, 2016

6.1.2 New research looks at leaf diseases affecting canola crop sustainability

" Professor Martin Barbetti from the University of Western Australia's school of plant biology has received funding from the Grains Research and Development Corporation to investigate why four leaf diseases that affect oil seed Brassica (also known as canola) are emerging as a growing threat to crops.

White leaf spot, downy mildew, powdery mildew and Alternaria leaf spot had all become more severe in recent years.

"There is not much information available on these emerging leaf diseases," Barbetti says. "This project will give growers the tools they need to make informed management decisions."

The project commenced in July and will run until July 2018.

<http://www.bluescountry.com.au/articles/2015/8/new-research-looks-at-leaf-diseases-affecting-canola-crops/>

Dated: August 6, 2015

6.2 Grains Innovation Park, Horsham, Victoria

6.2.1 Oilseed: high risk, high reward

"THE REAL possibility of oilseed rape yields of up to 5 tonnes a hectare is an obvious reason behind German farmers growing the European canola equivalent, but a visiting German professor says it is a high risk, high reward business.

Henning Kage, a professor at Christian Albrecht University in Kiel, ----- said high production and compliance costs meant it worked out to be around 800-900 euro (\$A1182-\$1330) a hectare to plant the crop.

This compares to an Australian figure of around \$400/ha. However, Prof Kage said yields throughout Germany could easily top 5t/ha, compared to Australian averages around 1.5t/ha and prices in recent years had been over \$A700/t, although they have come back to \$515/t this year.

"Demand from bio-energy has been a key reason for oilseed rape plantings increasing,"-----.

"Biofuel manufacturers use more than three quarters of the oilseed rape grown in Europe.

----- there was further scope to improve yields,-----". "Given the available light and radiation, I think we could push for yields of 8t/ha, but that is a long way off.

"It will require improved in-paddock management to get that light use efficiency up."

<http://www.farmonline.com.au/news/agriculture/cropping/general-news/oilseed-high-risk-high-reward/2723505.aspx>

Dated: February 23, 2015

7. Aktiwiteite van Saadmaatskappye

7.1 National Variety Trials (NVT)

"In this section of NVT Online you can find basic information on recently released varieties tested in the National Variety Trials program.

Variety	Release Year	Test Code	PBR	EPR	Marketer	Breeder	Link to Resource
IH51 RR	2015		No	EPR Applies	Bayer CropScience	Bayer CropScience	View

Comments:

As the first variety with PodGuard™ released in Australia (and only the second anywhere in the world), IH51RR provides a glimpse into the future of canola. There are only limited quantities available for the 2015 growing season, so we're recommending growers sow a paddock or two to provide more timing flexibility at harvest. You can leave the IH51RR standing while you harvest less resilient varieties first.

Pioneer 44Y89 (CL)	2014	PHI-1305	No	EPR Applies	Pioneer Hy-Bred Aust Pty Ltd	Pioneer Hy-Bred Aust Pty Ltd	View
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Comments:

A new generation Y series hybrid that has outstanding performance adding to the already outstanding early-mid maturity options in Pioneer's Clearfield product range. One of the most widely adapted Clearfield hybrids combined with an outstanding agronomic profile.

Pioneer 45T01 (TT)	2015	CB1302TT	No	EPR Applies	Pioneer Hi-Bred Aust	Pioneer Hi-Bred Aust	View
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Variety	Release Year	Test Code	PBR	EPR	Marketer	Breeder	Link to Resource
					Pty Ltd	Pty Ltd	

Comments:

Recommended planting option in medium and high rainfall growing zones. A better option for managing weeds and herbicide resistance than TT canola varieties without compromising vigour and yield potential. • Early-mid maturity (4) with outstanding plasticity offering greater flexibility across the planting window. • Excellent oil content for those attractive oil bonuses • Excellent blackleg resistance – [R]. • Recommended planting partner to Pioneer® 44Y24 & 45Y25

Pioneer Sturt TT	2015	CBWA-106;CB Sturt TT;	Yes	EPR Applies	Pioneer	Pioneer	View
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Comments:

Sturt TT is the earliest maturity TT planting option from Pioneer reducing risks without compromising yield in short season growing zones. The unique open-pollinated variety adds flexibility for rotational weed management and is well suited to direct harvesting

7.2 DuPont Pioneer

7.2.1 New canola technology needed to catch Canadian yields

"Canada, Europe and China canola yields are on average 400kg/ha higher than in Australia -----.

From new canola hybrid technology to seed quality and responsible stewardship, there are a range of tools that can be used to help close the productivity gap between Australia and its international competitors.

----- a lot of this comes from their very rapid adoption of hybrids – they're nearly at 100 per cent adoption in Canada, while in Australia we're around 30-35 per cent.

"Our new Optimum® GLY herbicide tolerant canola is very exciting ----- – this glyphosate-tolerant canola variety has a wider window for application than current Roundup Ready technology and while it's still a few years away from commercial release, it is well evolved," -----.

The second area of focus is responsible stewardship, involving sustainable practices such as herbicide resistance management, while the third area revolves around seed quality and technology innovation."

<http://pioneeranola.com.au/media/new-canola-technology-needed-to-catch-canadian-yields/>

Dated: November 9, 2015

7.3 BayerCropScience

7.3.1 New joint initiative to combat metabolic resistant ryegrass

"On the heels of its \$45 million partnership with the Grains Research and Development Corporation (GRDC) to develop weed control solutions for farmers, Bayer CropScience has today announced it

is joining forces with The University of Western Australia (UWA) to combat herbicide resistant annual ryegrass.

Together with funding from the Australian Research Council, the three-year, \$1.1 million initiative will involve research conducted by the Australian Herbicide Resistance Initiative (AHRI) based at UWA and supported by GRDC, linked with researchers at the Weed Resistance Competency Centre (WRCC) of Bayer CropScience in Frankfurt, Germany.

The project will specifically target metabolism-based herbicide resistance in annual ryegrass, which forms a significant portion of the herbicide resistance profile.

“In some cases it is easy to determine how plants evolve resistance, while in other cases it’s not. One of the most difficult nuts to crack is how ryegrass biochemically breaks down or metabolises herbicides,” said AHRI Director and UWA Professor Stephen Powles.

“It’s a major threat because if ryegrass breaks down herbicide modes of action that have not been discovered yet, we have problems. This is a very scary resistance mechanism.”

The project will identify genes responsible for metabolic resistance and seek to inhibit them.

It is estimated Australian farmers lose more than \$3 billion a year due to resistant and poorly controlled weeds."

<http://bayercropscience.com.au/cs/mediagallery/default.asp?articleid=858>

Dated: June 4, 2015

7.3.2 Australia to approve Bayer’s GM canola

"The Australian Office of the Gene Technology Regulator (OGTR) is currently assessing licence application DIR 138 from Bayer CropScience Pty Ltd for the commercial release of InVigor® x TruFlex™ Roundup Ready® canola. This canola is the result of conventional breeding between the GM InVigor® and GM TruFlex™ Roundup Ready® canola lines which were individually authorised for commercial release under licences DIR 021/2002 and DIR 127, respectively.

The GM canola proposed for release contains genes for a hybrid breeding system and tolerance to the herbicides glufosinate and glyphosate . "

<http://news.agropages.com/News/NewsDetail---16431.htm>

Dated: November 25, 2015

7.4. Nuseed

7.4.1 Sustainable DHA omega-3 canola closer to reality

"In 2011 research collaboration was formed between Nuseed (a wholly owned subsidiary of Nufarm Limited), the Commonwealth Scientific and Industrial Research Organisation (CSIRO) and the Grains Research and Development Corporation (GRDC) to develop a genetically modified canola that will produce long-chain omega-3 oil at levels equal to that of wild fish.

The Australian collaboration achieved a significant milestone in late 2013 when DHA oil levels equal to those found in wild fish were produced.

Development of the canola involves plant-to-plant gene transfer. The project uses advanced technologies for genetic improvement to transfer plant genes (from microalgae) to another plant (canola) to deliver long-chain DHA-rich omega-3 oil, similar to that found in fish.

If the innovation proves successful, it is estimated that one hectare of the DHA canola has the potential to deliver the equivalent amount of DHA that can be extracted from 10,000 one kilogram fish.

<http://www.saipatformaust.org/cases/sustainable-dha-omega-3-canola-closer-to-reality>

Dated: July 3, 2015

7.5 DowAgroSciences

7.5.1 Dow AgroSciences launches new broadleaf herbicide ForageMax™ Arylex™ Active

"Dow AgroSciences is proud to officially launch its new broadleaf weed control solution ForageMax™ Herbicide with Arylex™ Active. Using the newly developed Arylex Active compound, ForageMax effectively controls the prolific Fat-hen and other broadleaf weeds allowing intensive grazing operations to successfully grow more of their own feed, increasing profitability for graziers.

Registered for use on rape and turnip forage brassica crops, ForageMax contains two powerful active ingredients, Arylex and Aminopyralid, that work together to provide excellent control of a wide range of broadleaf weeds."

http://www.dowagro.com/en-au/australia/news_and_resources/news_room/2015/08/foragemax#.Vs8R1G6yit8

Dated; August 17, 2015

7.6 Pacific Seeds (*changed its operating name to Advanta Seeds; continue to market under the Pacific Seeds brand*)

7.6.1 Research shows canola's allelopathic potential against annual ryegrass

"A recent study by Charles Sturt University at Wagga Wagga has demonstrated the canola plant's potential to naturally suppress annual ryegrass growth through chemical interference – also known as allelopathy.

The results found that most of the canola genotypes evaluated significantly reduced the root growth of ryegrass with increasing density."

----- plants have long had the capability to compete with other species in varying degrees, and one mechanism is for the plant to exude chemicals into the root environment to inhibit the competing plants.

"The competing species will be doing the same thing and the winner will be the one which has the most potency to its competitors while also being tolerant of the chemicals being exuded by those competitors."

This process is known as allelopathy and the chemicals involved are called allelochemicals.

----- hybrids were evaluated as part of the Equal Compartment Agar Method (ECAM) laboratory work, which is a simple and rapid evaluation of plant capability. The technique has been widely used and its correlation with field performance has been tested for both rice and canola,"

----- the most suppressive genotype was Hyola 404RR – a popular Roundup Ready hybrid marketed by the company.

"Hyola 404RR resulted in 72 per cent root growth inhibition of annual ryegrass, followed by genotype Hyola 970CL, at 70pc, slightly ahead of the high allelopathy control line at 68pc.

"Hybrids such as Hyola 650TT, Hyola 559TT, Hyola 600RR, Hyola 577CL, Hyola 525RT and Hyola 725RT showed moderate to high allelopathic potential, which is a great result."

The weakest of the lines evaluated were the open pollinated canola varieties such as Thumper TT and Crusher TT."

<https://www.pacificseeds.com.au/news-and-events/media-releases/563-research-shows-canola-s-allelopathic-potential-against-annual-ryegrass.html>

Dated: February 9, 2016

7.6.2 Hyola tops industry blackleg ratings

"Hyola canola varieties have been rated the highest in the industry for blackleg resistance in a recent GRDC publication.

All Hyola varieties currently on the market achieved either the top rating of Resistant (R) or the second highest rating of Resistant-Moderately Resistant (R-MR) in the organisation's 2015 autumn blackleg management guide."

<https://www.pacificseeds.com.au/news-and-events/media-releases/504-hyola-tops-industry-blackleg-ratings.html>

Dated: May 1, 2015

7.6.3 Promising first report on RT canola

"----- one of the first to grow the new technology crop, citing Integrated Weed Management (IWM) and yield as his motivation.

According to Pacific Seeds and Monsanto, the developers of the world-first technology, RT works by combining the broad spectrum knockdown control of Roundup Ready with the residual activity of triazine herbicides.

----- the results were quite pleasing. The RT didn't have a yield penalty typical of Triazine; yielding similar to the three Roundup crops we had in, so it was a good test."

----- the canola also cleaned up the paddock significantly. "We didn't see any radish in the crop at all."

On yield, ----- they grew canola predominately for weed control but "it's nice to get a good yield to keep you afloat too."

<https://www.pacificseeds.com.au/news-and-events/media-releases/486-promising-first-reports-on-rt-canola.html>

Dated: January 27, 2015

8. Other Matters of Interest

New for canola

"Another Monsanto product focuses on canola. TruFlex Roundup Ready allows farmers to apply Roundup WeatherMAX rates at about double those of first-generation systems, and offers better control of annual weeds and tough perennials like dandelion, foxtail barley and wild buckwheat, plus a wider spectrum of weeds including yellow foxtail, biennial wormwood and common milkweed.

The application window will also extend past the six-leaf stage to the first flower, or 10 to 14 days longer than current technology.

"TruFlex has a higher application rate with a wide application window to provide growers with more flexibility -----.

Right now, Monsanto is working through the global regulatory process, ----- Monsanto has approval from Canadian regulatory agencies, as well as the U.S., Korea, Japan and Mexico, but is still awaiting

approval from Europe and China.

A non-stacked product will be coming from DuPont Pioneer, which plans on introducing Optimum GLY canola in the next few years.

“DuPont Pioneer anticipates commercialization of this trait later this decade in key canola-growing geographies, specifically Western Canada and Australia, pending key regulatory-----.

In November, Cibus Global and Rotam announced their U.S. launch of non-transgenic SU Canola, which is resistant to Group 2 herbicide sulfonylurea.

“SU Canola offers farmers a new alternative for weed control in canola that will provide sound stewardship options to deal with the management of glyphosate weed resistance,”----- “SU Canola is an optimal fit for rotation with glyphosate-tolerant soybeans, reducing weed pressure caused by volunteer glyphosate-tolerant canola in soybean fields.”

<http://www.country-guide.ca/2015/03/10/stacked-tolerance-traits-taking-on-herbicide-resistant-weeds/46041/>

Dated: March 10, 2015

jdp/29/2/16 (Edited)