



**GROWER
GROUP
ALLIANCE**
Together we grow

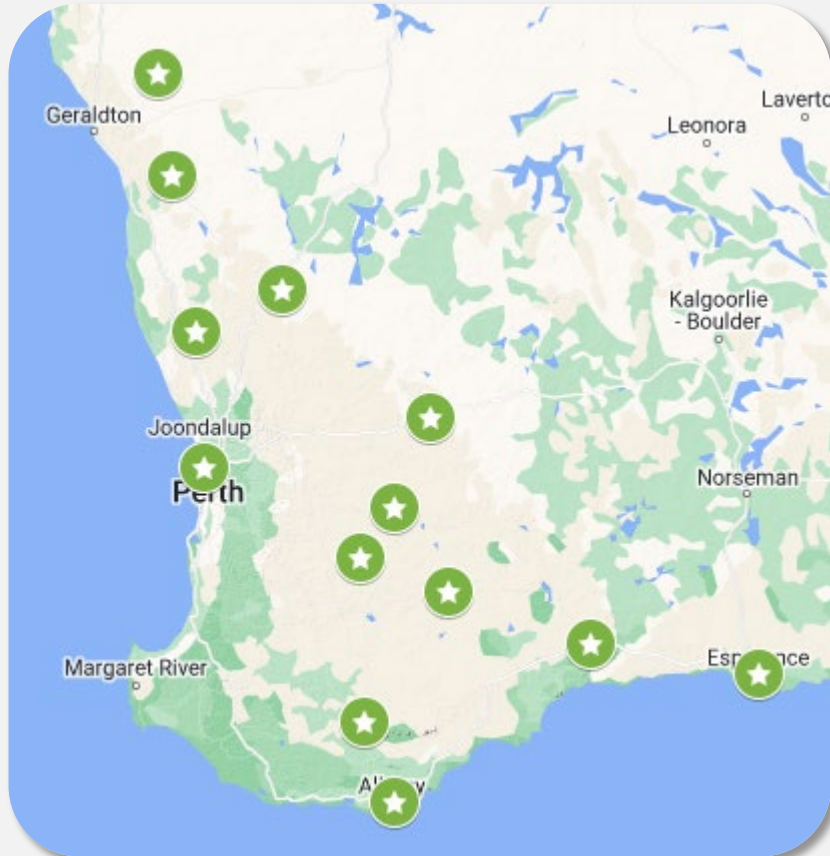
WWW.GGA.ORG.AU

CLOSING THE ECONOMIC YIELD GAP OF GRAIN LEGUMES IN WA

2023 GROWER SURVEY



VISIT OUR
PROJECT
MAP



Locations of grower groups involved in the project.

Project overview

This GRDC investment focuses on optimising agronomic practices to enhance the yields of grain legumes across diverse environments and soil types. By identifying the best economic fit for grain legumes in different sub-regions, it aims to provide growers with the knowledge and confidence to overcome yield-limiting constraints, ultimately helping them achieve their target yields and close the economic yield gap.

Despite the rotational benefits of grain legumes, such as nitrogen fixation and disease breaks, their adoption in Western Australia remains limited due to factors such as poor commodity prices, market access challenges, and yield variability.

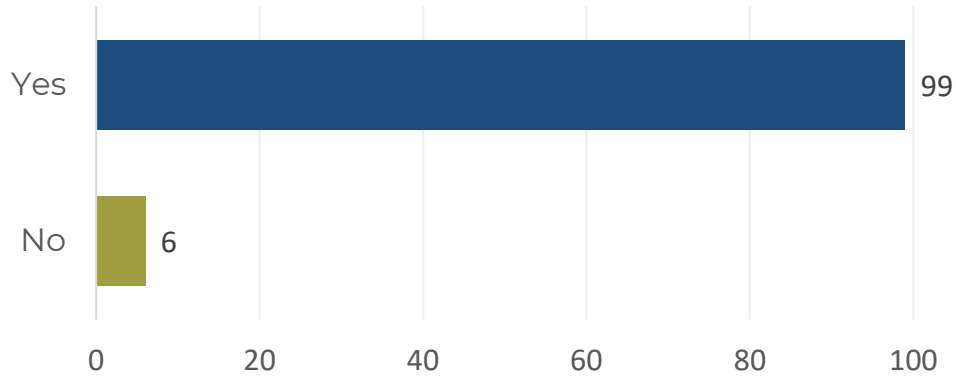
Grower Group Alliance (GGA), together with 13 grower groups, conducted a survey in 2023, which was completed by 105 growers across Western Australia. The survey results revealed that over half of the respondents considered grain legumes to be unprofitable. Additional issues raised by growers included difficulties with broadleaf weed control and harvestability.

Despite these challenges, many growers continue to incorporate grain legumes in their rotations for the long-term benefits, including improved soil health and grass weed control. Looking forward, growers are calling for increased investment in overcoming poor commodity prices, improved market access, ongoing cultivar development, and better quantification of the nitrogen contributions from legumes.

In 2023, 105 growers from across W.A participated in a survey to indicate their current use of grain legumes and reasons for their adoption or dis-adoption in their farming system.

Have you ever grown grain legumes?

Total respondents: 105



Summary

Grain legumes have been previously grown by more than 95% of respondents. Familiarity with an agronomic species or management practice will make the likelihood of adoption of similar crops or practices (small agronomic or genetic improvements) more likely according to the ADOPT model (Kuehne, 2011). The six growers who had not ever grown grain legumes were located in the central wheatbelt.

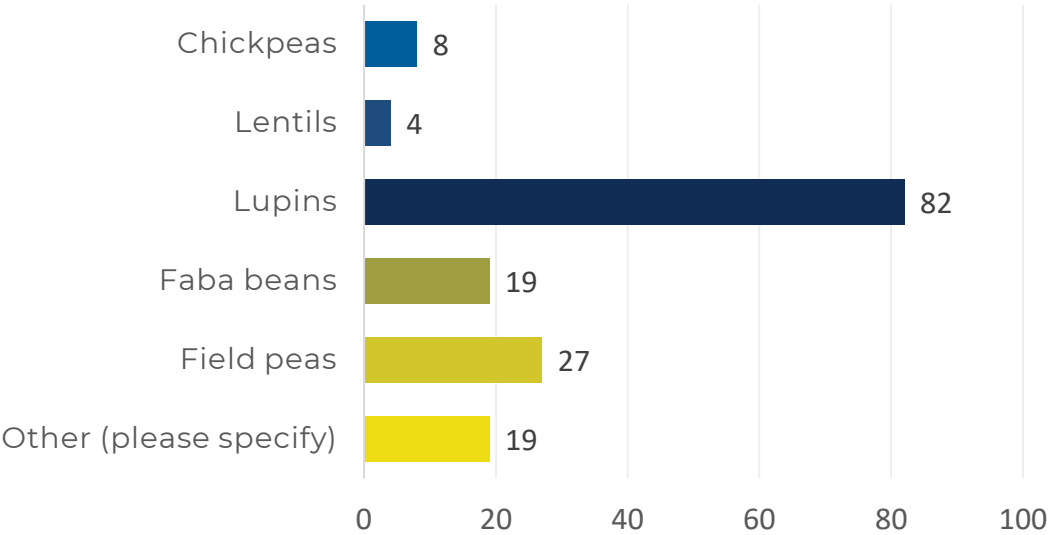
Kuehne, G., Llewellyn, R. S., Pannell, D. J., Wilkinson, R., Dolling, P., & Ewing, M. A. (2011). ADOPT: a tool for predicting adoption of agricultural innovations.



LIEBE GROUP
GRAIN LEGUME TRIAL - JIBBERDING, WA

What grain legumes do you currently use?

Total Respondents: 100 / Skipped: 5



NB – Some respondents grow more than one grain legume

Summary

There is a strong familiarity with lupins in WA with 82% of respondents currently utilizing them in their crop rotation. Some growers describe lupins “as familiar as wheat” in terms of the agronomic understanding required to maximise productivity. Field peas (27%) and faba beans (19%) are currently utilised by approximately 1 in 5 respondents.

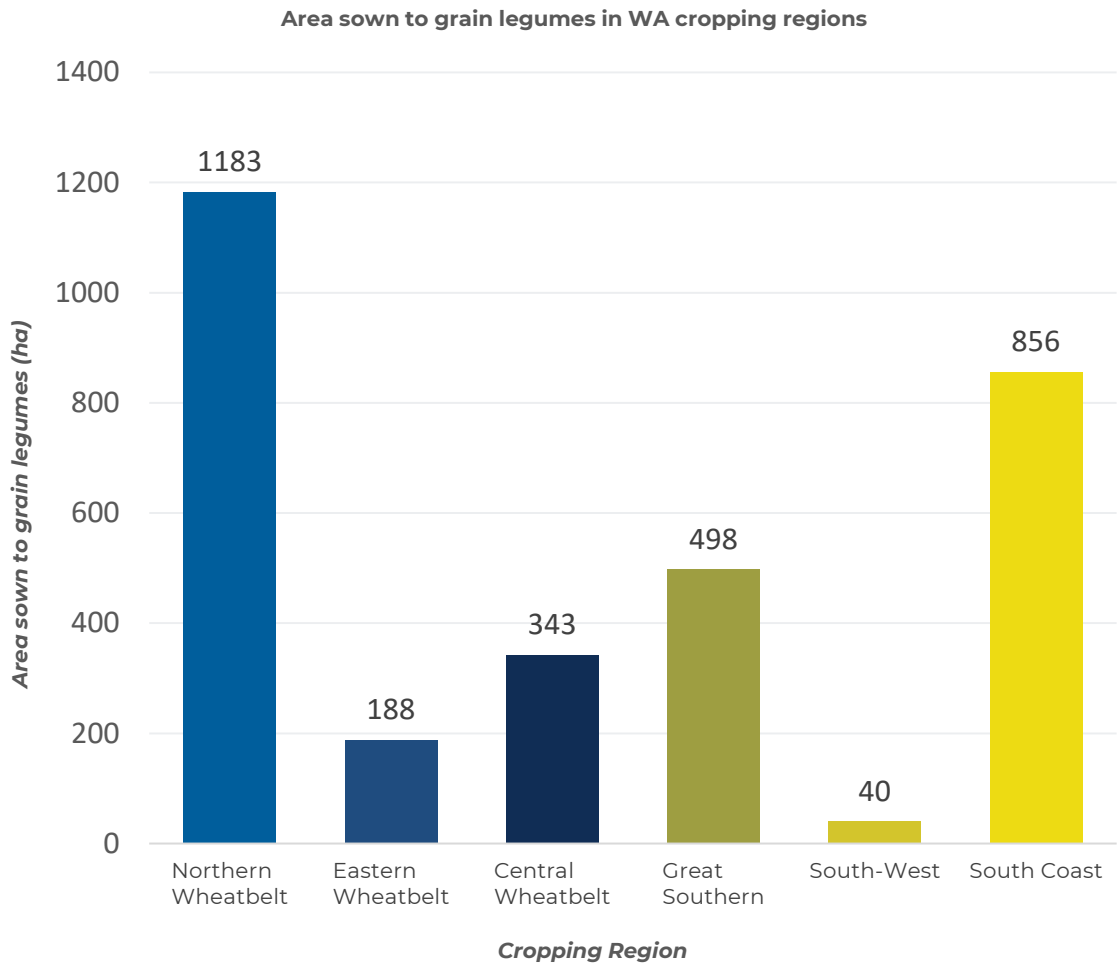
Additional responses

	Responses
Nil	6
Vetch	11
Pasture (medic, serradella, subclover)	4



How many hectares of grain legumes do you currently grow?

Total Respondents: 99 / Skipped: 6



Note that the total area given may represent more than one grain legume crop type.

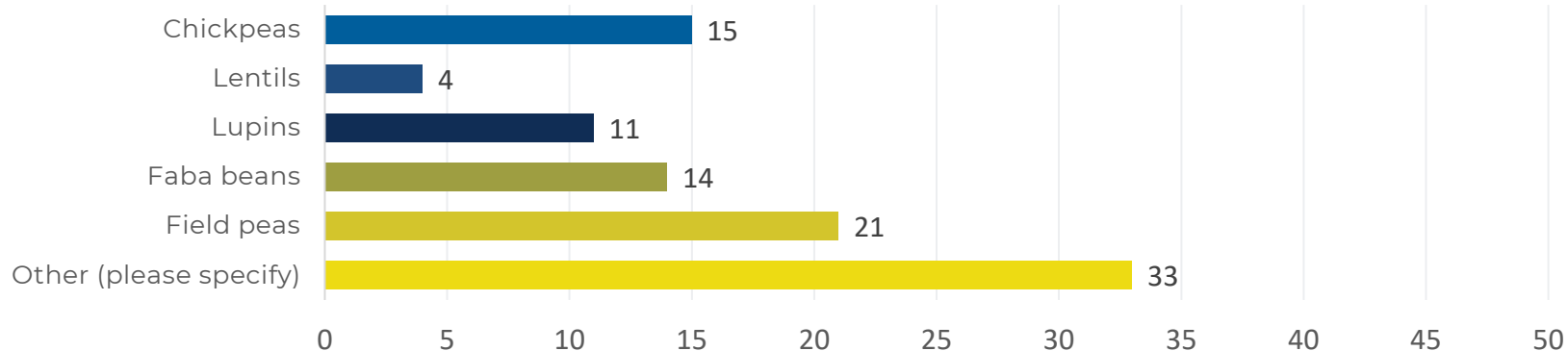
Summary

The results indicate that, on average, respondents are sowing approximately 645 ha of grain legumes in their cropping rotation. However, this ranges from 0 – 3600ha across the State. The largest areas are sown to (predominantly) lupins in the northern Wheatbelt.



Is there a grain legume that you have stopped using? if so, can you also comment why?

Total Respondents: 54 / Skipped: 51



Summary

Field peas are the crop that most respondents have stopped using (38%) and the comments suggest this is largely due to harvestability issues and poor market price.

Almost 26% of respondents have stopped growing faba beans due to poor or fluctuating commodity prices, market access, low yields and weed control issues. Interestingly, two respondents referred to a particularly bad year in 1996 as the main reason for not growing faba beans again, which demonstrates how long a negative opinion can be held on a crop type from a single failure, despite recent advances in agronomy and profitability.

Fifteen respondents (27%) no longer grow chickpeas because of poor yields coupled with fluctuating commodity price and poor market access. All of these responses were received from growers in the northern wheatbelt.

Eleven respondents (20%) have stopped using lupins, but the only reasoning given for this was intolerance to wet conditions in the central and southern wheatbelt and that their only use was as a feed source for sheep and they have now gone 100% cropping.



RAVENSTHORPE AGRICULTURAL INITIATIVE NETWORK (RAIN)
Paddock Scale Field Pea Trial - Ravensthorpe

The main reasons for the dis-adoption of grain legume crops are:

Reason For Dis-adoption	Number of Comments
Low or fluctuating commodity price	9
Poor or variable yields	8
Issues with market access	4
No broadleaf weed control options	4
Overall profitability (yield x price)	3
Susceptibility to frost / poor chilling tolerance	3
Climate / soil adaptation	3
Harvestability	2

The commodity price and market access remain as major barriers to adoption. However, success stories include growers in the Esperance port zone who collectively drove the issue of port access and now have a clearer path to market.

Stirlings to Coast Farmers have also been working with local growers and [Commodity Ag](#) to investigate potential options in the Albany port zone.

In addition, CBH have suggested that they will open up new storage for grain legume crops with a minimum commitment of 15,000t so co-ordination among local growers is paramount to overcoming this barrier.

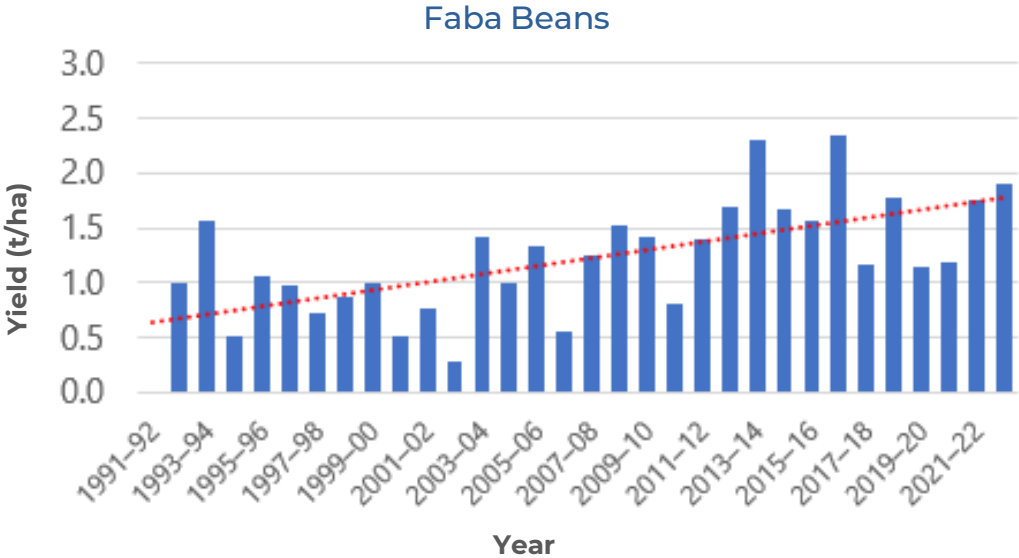


Figure 1. Mean yield of faba bean crops in WA from 1991-2021. Red dotted line is the linear trend line.

Grain Legumes are associated with being difficult to harvest and in some cases require an investment in specialized harvesting equipment and on-farm storage to maximise yields and market price.

The GRDC investment into measuring harvest losses in WA has demonstrated that losses for grain legumes can exceed 10-20% depending on harvester set-up, front and operating speed, harvest conditions and characteristics of the crop. This can have a major impact on yield and profitability.

What do you consider are the biggest risks/challenges to growing grain legumes? (tick 3 that apply)

Total Respondents: 105



Summary

The three biggest challenges identified were profitability (52%), commodity price (49%) and harvestability (32%).

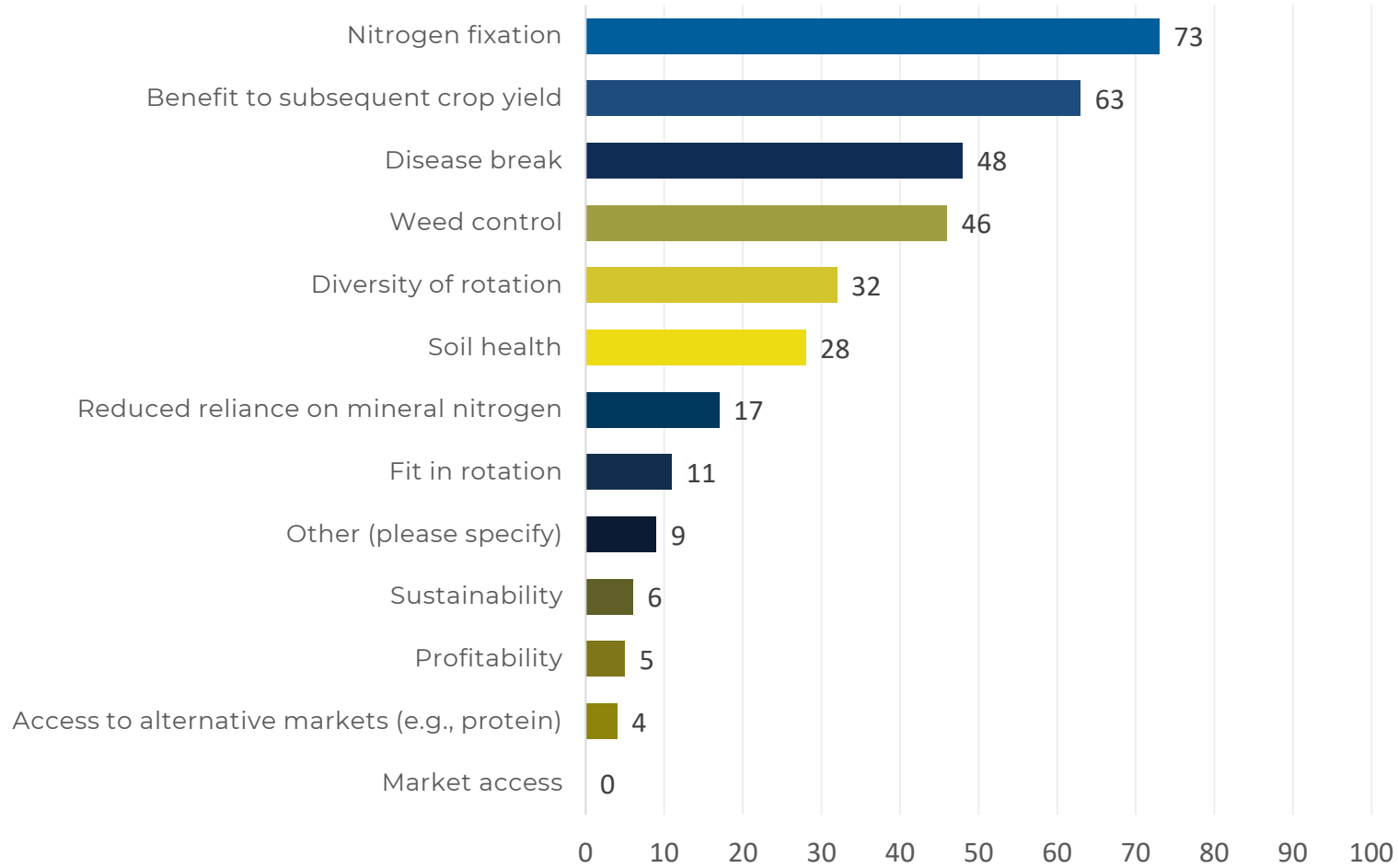
More than half (52%) of respondents consider grain legumes to be unprofitable. Profit is a function of yield x price – input cost. Almost 38% of the total 309 selections related to agronomic issues that affect yield (e.g., disease, soil constraints, abiotic stress, weed control, harvestability) or chose seed production as a direct issue.



**CORRIGIN FARM IMPROVEMENT GROUP
BREAK CROP SEQUENCES FOR LOW RAINFALL ZONE
NAREMBEEN WA**

In your opinion, what are the most important benefits of a grain legume rotation?
(tick 3 that apply)

Total Respondents: 103 / Skipped: 2



Other Responses

	Responses
Sheep feed source	7
Clean paddocks	1
Nematodes	1

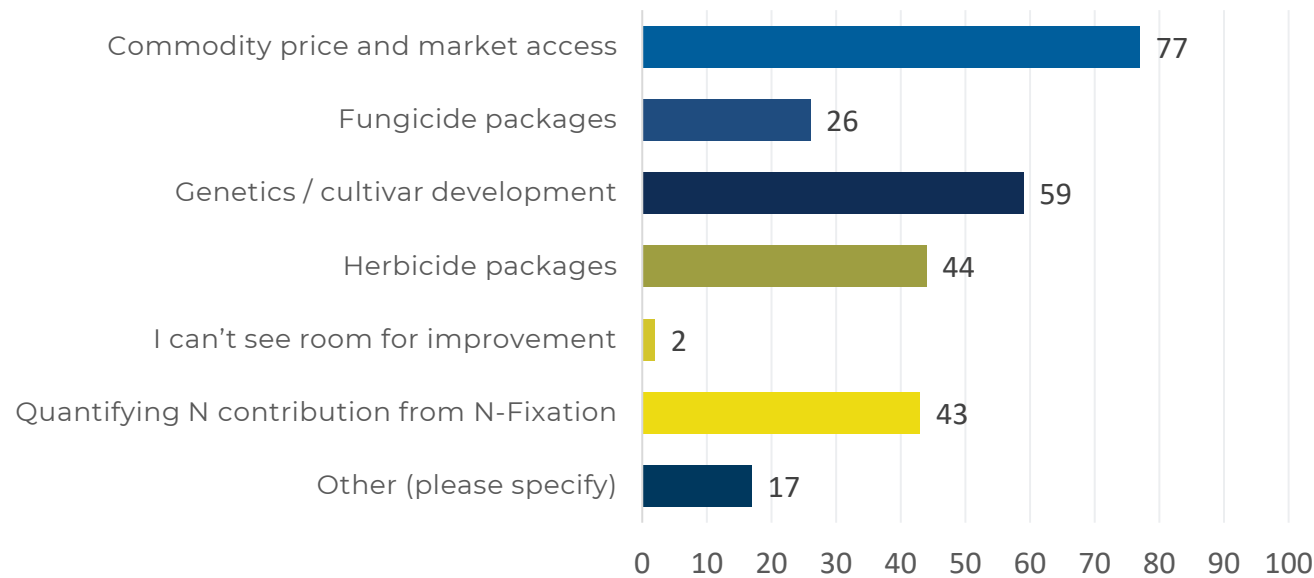
Summary

The primary benefits derived from grain legume crops continue to center around N-fixation (70% of respondents) and the yield improvement this gives to subsequent crops (61%). Note that the yield benefit was seen of greater importance than the potential reduced reliance on mineral N fertiliser. Of almost equal importance were the rotational benefits associated with providing a disease break (46%) and ability to control (grass) weeds (44%).

Thirty-one per cent of respondents indicated that grain legumes were beneficial in improving the diversity of their crop rotations, but this response appears to be associated with the disease and weed control benefits rather than contributing to the “sustainability” (5%) or “profitability” (4%) of their enterprise. Despite the low rating for sustainability, over 27% of respondents recognized the benefits that grain legumes have on soil health.

What do you consider are the 3 most important areas that need further research / investment to improve adoption of grain legumes? (tick 3 that apply)

Total Respondents: 103 / Skipped: 2



Other responses

	Responses
Harvestability	3
Improved profitability	2
Better yields	2
Chilling tolerance in chickpeas	2
Improving the rate of flowers vs pod development. Flower abortion is massive in both lupins & faba beans.	1
Agronomic package	1
Grazing Management	1
Crop nutrition – do I fertilise my legume crops or not?	1
Crop height (taller please)	1
Relevant yield information to my area	1

Summary

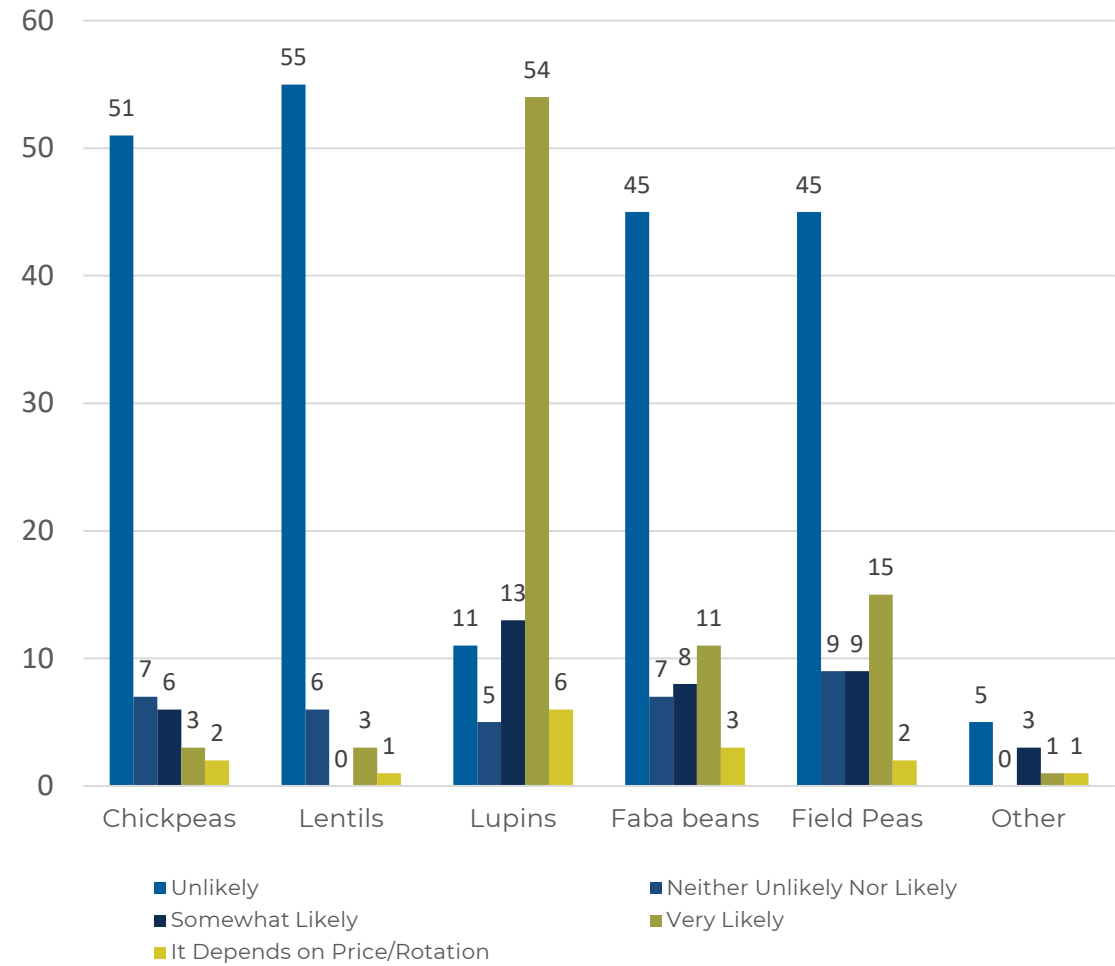
Almost 75% of respondents continue to assess that commodity price and market access are the dominant areas that require further research and investment. Commodity price as a key driver of grain legume profitability, has been identified as the biggest risk / challenge to grain legume adoption and a primary cause of dis-adoption.

Continued investment into crop genetics and plant breeding were also highlighted as important by 57% of respondents. Improved yields and yield stability may help reduce the risk associated with grain legumes and provide a small offset to the perceived poor commodity prices.

41% of respondents see a benefit in investment, which will help quantify the N contribution from grain legumes.

How likely are you to adopt a grain legume in your rotation in the next two seasons?

Total Respondents: 104 / Skipped: 1



Chickpeas

66% of respondents answered this question, of which almost 84% were unlikely to or undecided on whether to adopt chickpeas in the next two seasons. Only eleven respondents indicated they might adopt chickpeas in their rotation and for two of these their inclusion would depend on commodity price. The growers most likely to adopt were located in the central (3 respondents), eastern (2) and northern wheatbelt (1).

Lentils

62% of respondents answered this question, of which almost 95% were unlikely to adopt lentils in the next two seasons. Only 5% of respondents to this question were considering adoption of lentils. However, lentils are predominantly grown on the south coast near Esperance and this region is under-represented in the survey responses.

Lupins

85% of respondents answered this question, of which >80% were likely to use lupins in their rotation in the next two seasons. The growers most confident in lupins were from the central (27 responses) and northern wheatbelt (17 responses). Only 12% of respondents to this question were not likely to use lupins and 5% were undecided and these were predominantly from southern agricultural regions.

Faba beans

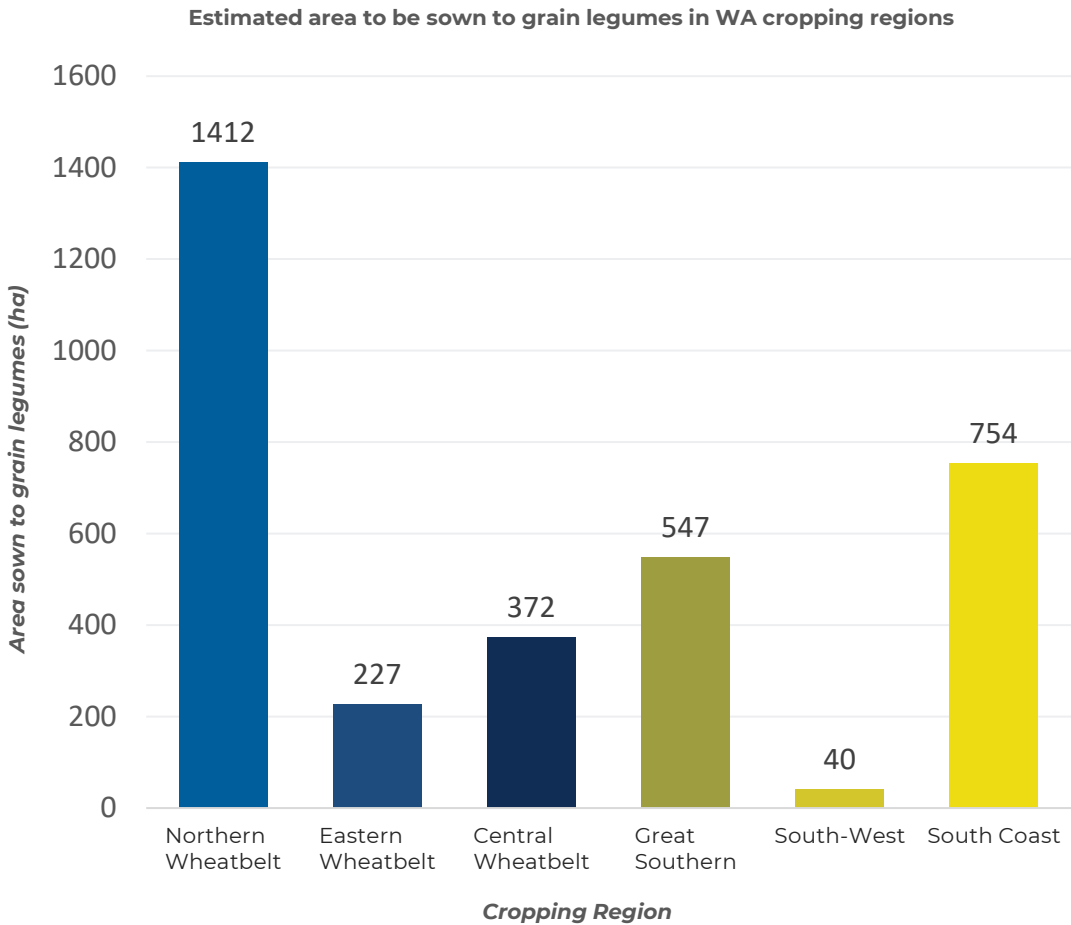
71% of respondents answered this question, of which 70% were unlikely or undecided on the use of faba beans in the next two seasons. Approximately 25% were likely to grow faba beans and the final 5% would adopt them in the rotation depending on market price or rotational fit. Only growers in the central wheatbelt (nine responses) and southern regions (13 responses) expressed any likelihood in adoption of faba beans.

Field peas

80% of respondents answered this question, of which 67% were unlikely or undecided on the adoption of field peas in the next two seasons. The remaining 30% of respondents are likely to adopt field peas with the final 3% likely should commodity prices be favourable.

On average how many hectares of grain legumes are you thinking of growing in the next two seasons?

Total Respondents: 99 / Skipped: 6



NB: Where a range was given (i.e., 400-600ha) we have used the mean value of the range.

Summary

The results indicate that on average respondents will be sowing approximately 705ha of grain legumes in their next two seasons. The slight increase compared to the last two growing seasons is largely driven by an increased area in the northern wheatbelt. This may reflect an increased level of optimism given the most recent decile 1 season in that region. The range of area sown to grain legumes again varies considerably from 0 – 3750ha across the state. The largest areas (mean 1412ha annually) are likely to remain sown to (predominantly) lupins in the northern Wheatbelt with little projected changes in other regions in the immediate future.

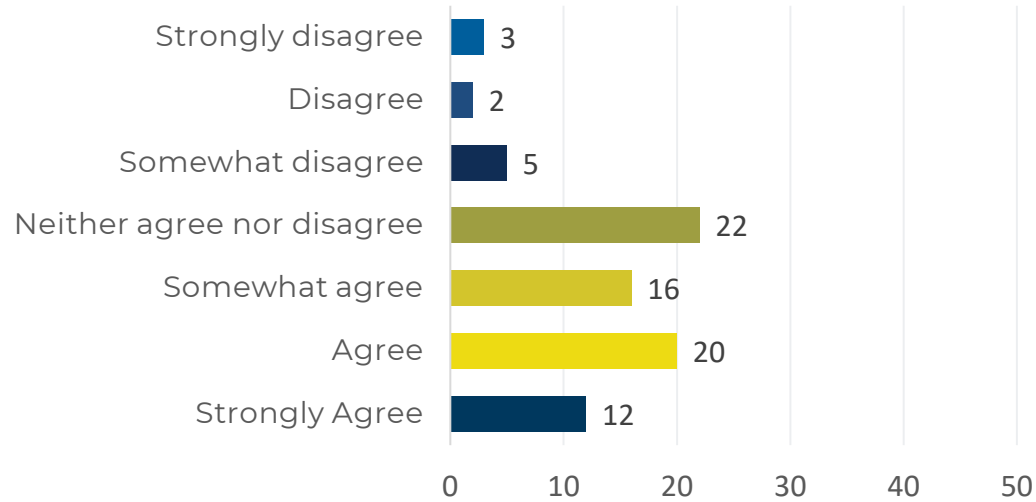


SCAN TO VISIT OUR
PROJECT WEBPAGE



As a result of this research activity, I have more knowledge about growing grain legumes in my region.

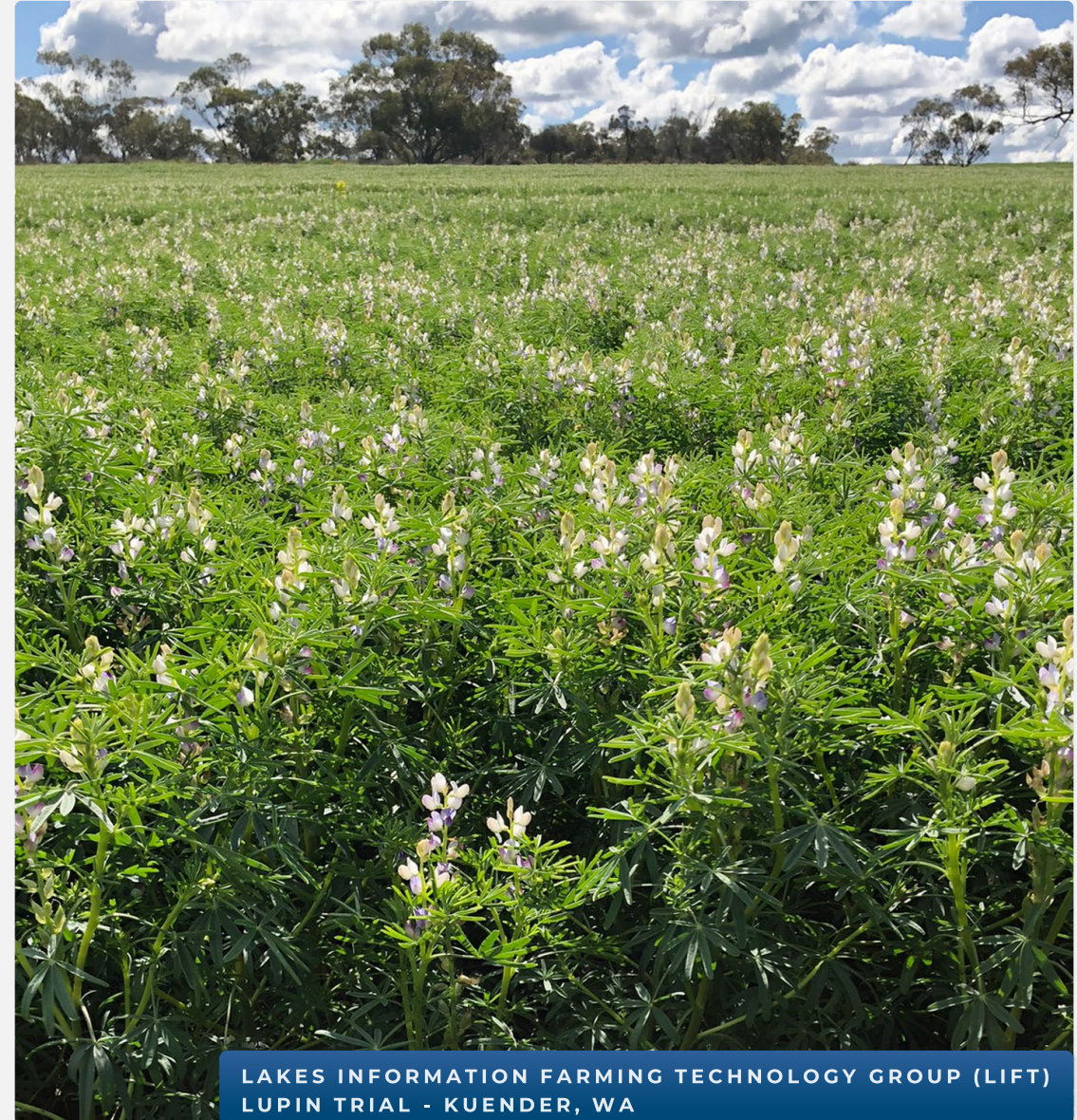
Total Respondents: 80 / Skipped: 25



Summary

Sixty per cent of respondents gained some knowledge from attending field days which demonstrated locally relevant grain legume research and extension. Only 12% of respondents gained no new knowledge and 27% were undecided.

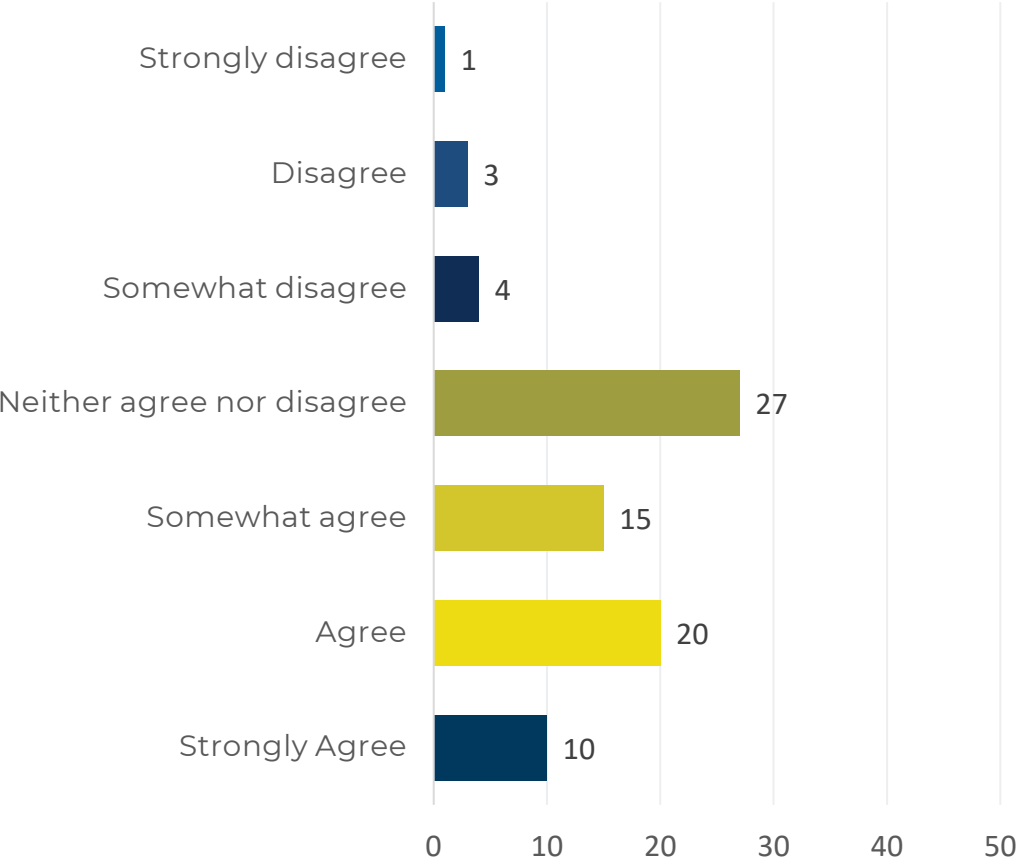
There continues to be benefits to locally relevant grain legume demonstrations. Continued investment is warranted, as the need for a profitable legume continues to be raised at GRDC National Grower Network meetings across WA.



LAKES INFORMATION FARMING TECHNOLOGY GROUP (LIFT)
LUPIN TRIAL - KUENDER, WA

As a result of this research activity, I am more confident that grain legumes can be a profitable part of my rotation.

Total Respondents: 80 / Skipped: 25



Summary

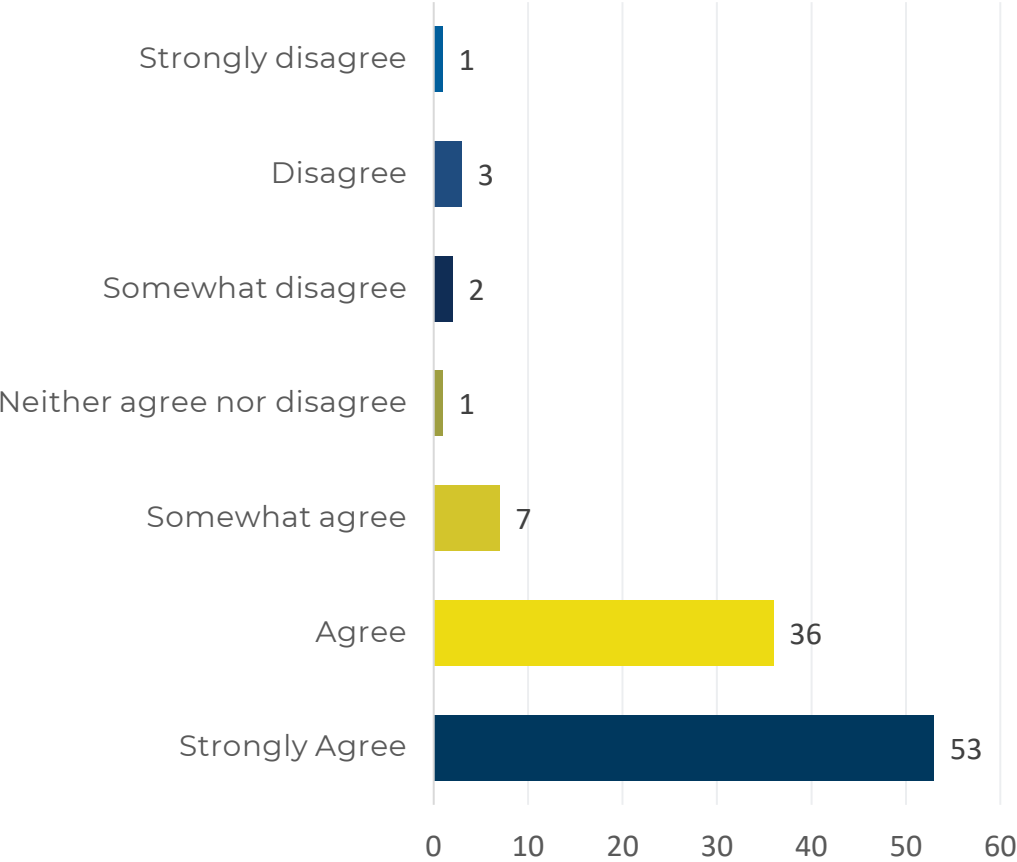
56% of respondents indicated that the grain legume demonstrations and discussion resulting from this project increased their confidence in the profitability of grain legumes. Only 10% of respondents did not increase their confidence in grain legume profitability and 33% were undecided.



LAKES INFORMATION FARMING TECHNOLOGY GROUP (LIFT)
LUPIN TRIAL - KUENDER, WA

I want my grower group to continue to seek funding for research on grain legumes.

Total Respondents: 103 / Skipped: 2



Summary

There is an overwhelming majority (86% of respondents) that would like their Grower Groups to continue to seek funding for grain legume research in their local area.



CLOSING THE ECONOMIC YIELD GAP OF GRAIN LEGUMES

PROJECT PARTNERS



**FOR MORE INFORMATION ABOUT
THE CLOSING THE ECONOMIC YIELD GAP OF GRAIN
LEGUMES IN WA
PLEASE VISIT THE PROJECT PAGE**

**[WWW.GGA.ORG.AU/ACTIVITY/CLOSING-THE-ECONOMIC-YIELD-
GAP-OF-GRAIN-LEGUMES-IN-WA/](http://WWW.GGA.ORG.AU/ACTIVITY/CLOSING-THE-ECONOMIC-YIELD-GAP-OF-GRAIN-LEGUMES-IN-WA/)**



**GROWER
GROUP
ALLIANCE**
Together we grow

