Plan Bee surveys

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Honey Bee Genetic Improvement Program (Plan Bee)

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Our team

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The University of Sydney

Wheen Bee Foundation

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Australian Honey Bee Industry Council

Commercial beekeepers via the Wheen Bee Foundation

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Plan Bee: Beekeeper and queen bee breeder surveys 2020

by Nadine C. Chapman and Elizabeth A. Frost
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Australian Government
Department of Agriculture, Water and the Environment

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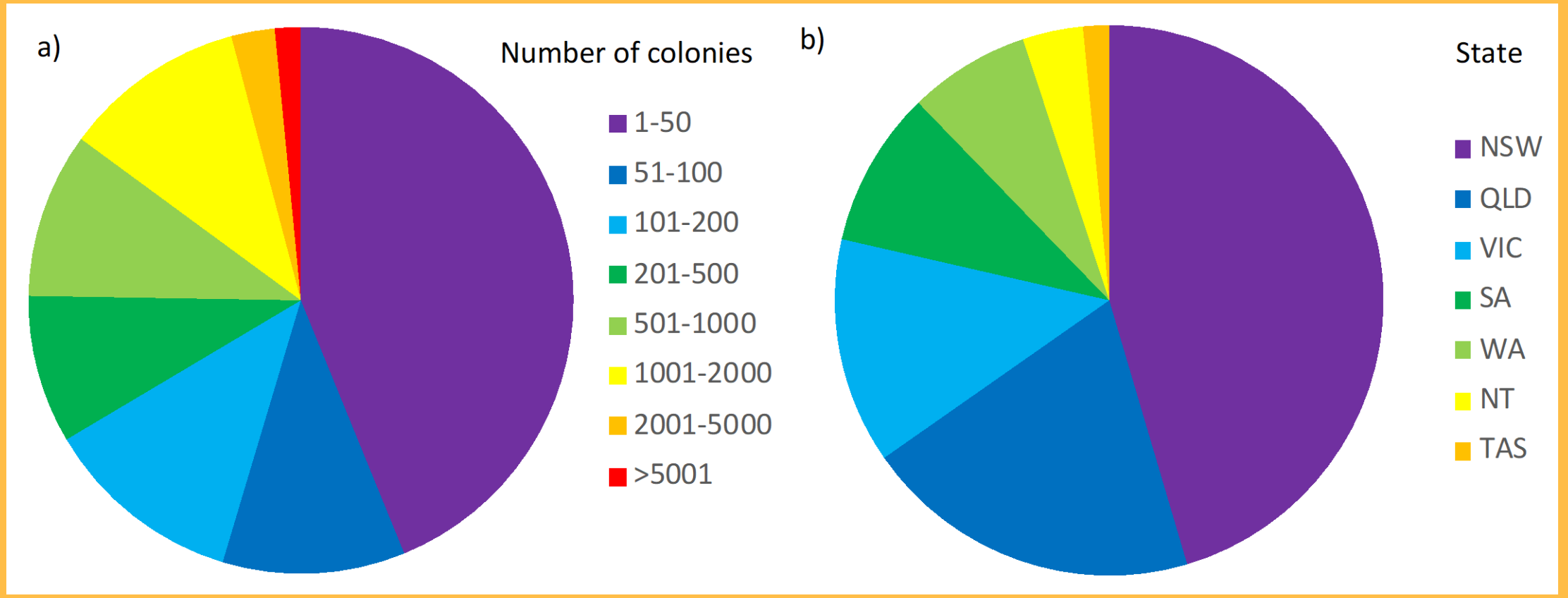
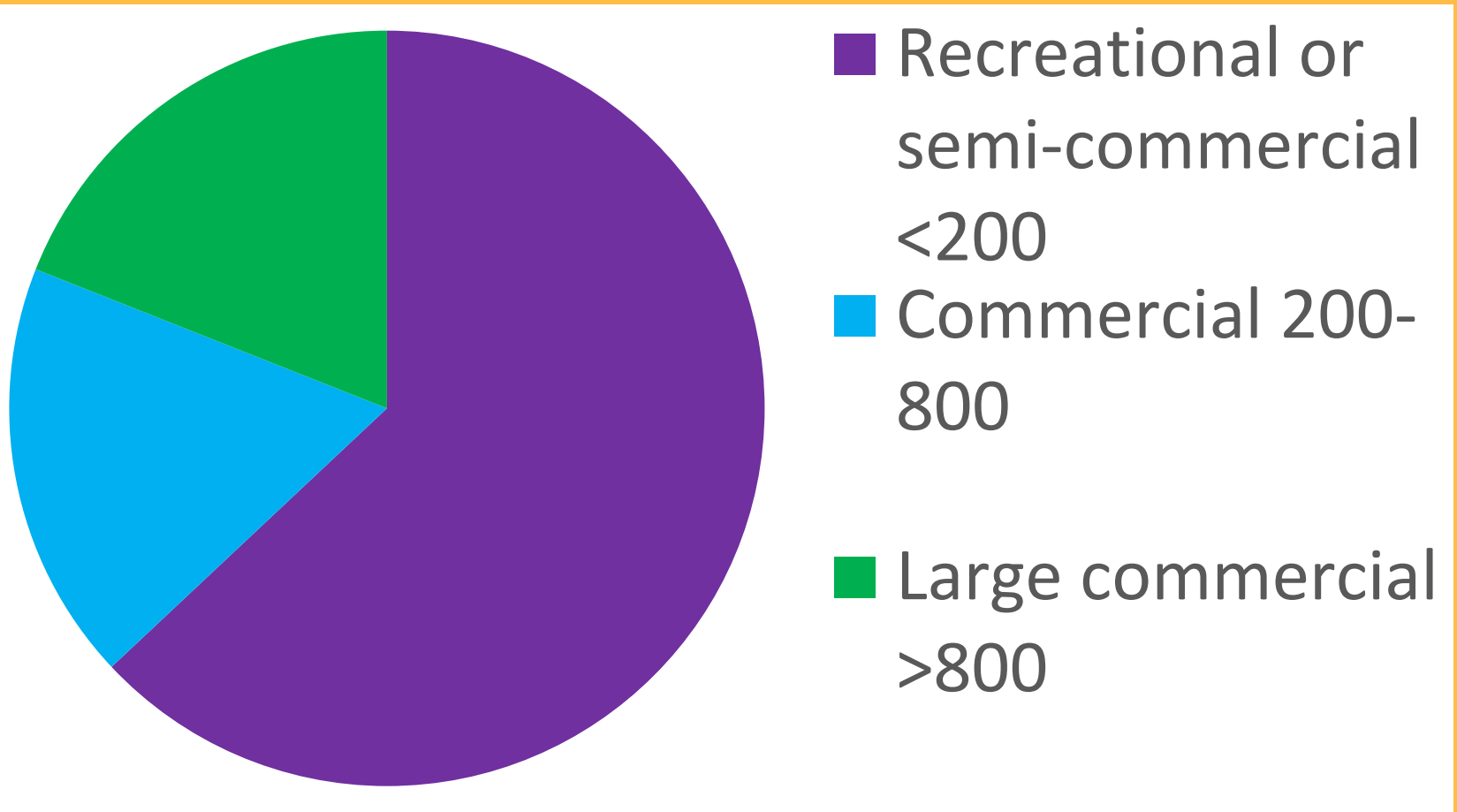
https://www.agrifutures.com.au/wp-content/uploads/2021/05/Plan-Bee-beekeeper-and-queen-bee-breeder-surveys-2020.pdf

Beekeeper survey: 196 responses




Recreational or semi-commercial <200
Commercial 200-800
Large commercial >800

Queen replacement

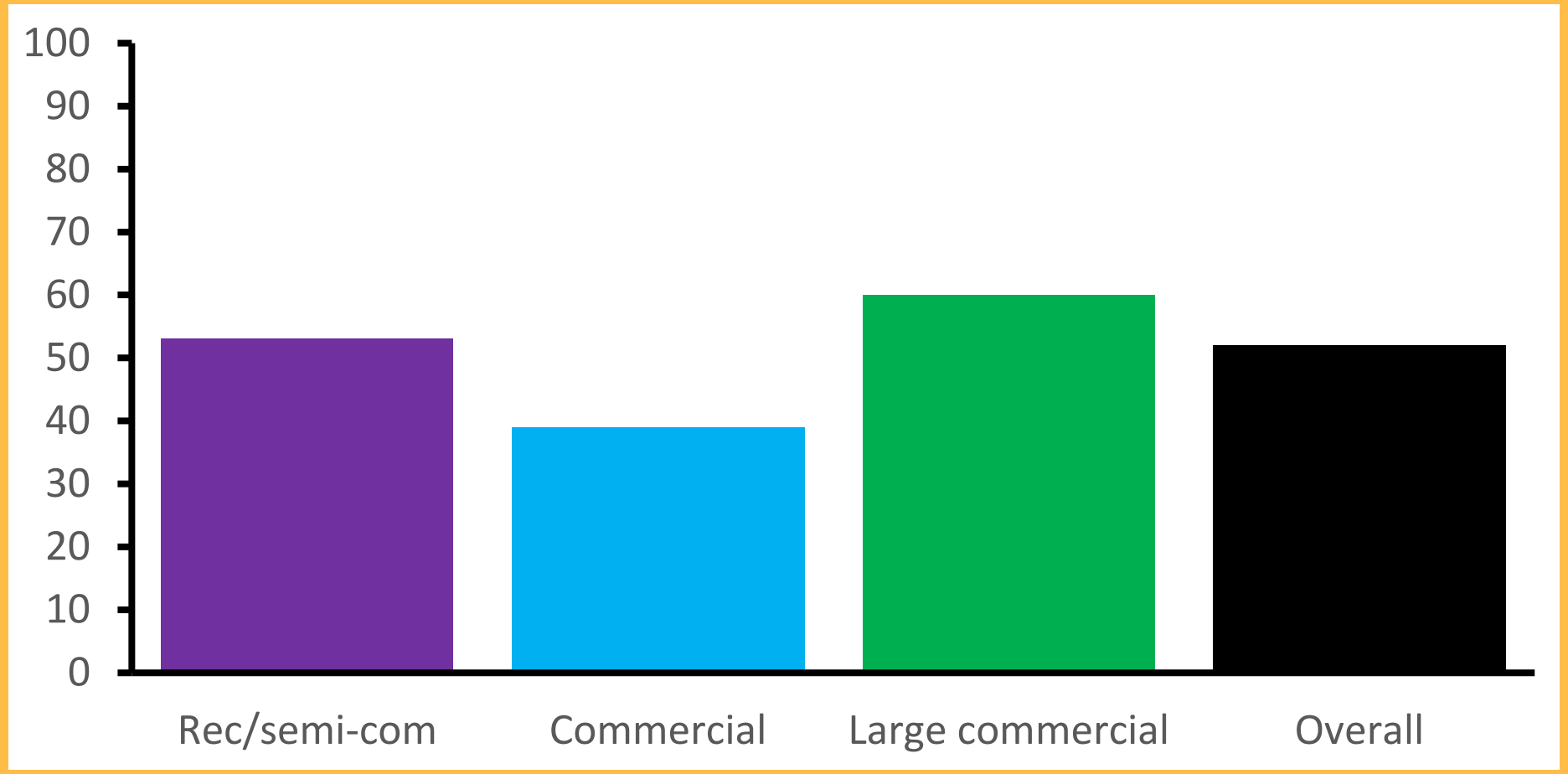
Queen replacement	Beekeeping operation size			
	<200	200-800	>800	Overall
As needed	50.8	37.1	35.1	45.4
1 year	11.3	34.3	56.8	24.0
2 year	29.8	22.9	8.1	24.5
3 year	4.0	0.0	0.0	2.6
Never	2.4	0.0	0.0	1.5
No response	1.6	5.7	0.0	2.0

Traits	Beekeeping operation size			
	<200	200-800	>800	Overall
Honey production	7.9	9.3	9.5	8.5
Pollen collection	6.8	7.0	7.8	7.0
Wax production	5.3	5.3	6.7	5.6
Burr/brace comb	4.8	4.8	5.0	4.9
Brood pattern	8.2	9.0	9.0	8.5
Spring build-up	7.0	7.8	8.7	7.4
Over-wintering	6.7	7.2	8.9	7.1
Gentleness	8.2	7.9	8.0	8.1
Swarm tendency	6.9	8.0	7.3	7.1
Longevity	6.9	8.0	8.7	7.3
Body size	5.3	6.3	7.0	5.8
Colour	4.4	5.7	5.7	4.9
Race	4.6	6.6	5.9	5.2
Hive cleanliness	7.2	7.3	7.1	7.3
Hygienic behaviour	8.3	8.4	8.8	8.3
Chalkbrood	8.1	8.9	9.1	8.4
EFB	8.3	7.9	9.1	8.3
SHB	7.5	6.6	7.5	7.3
Nosema	7.9	7.8	8.8	7.9
Average	6.9	7.4	7.8	7.1

Suggested traits

- Manage high temperature
- Mange high humidity
- Honey in brood nest
- Calmness
- Propolis
- Queen acceptance
- Varroa resistance
- Drone production
- Brood area
- Flight distance
- Quick shutdown
- Ability to travel
- Fertile eggs laid per day
- Wax colour
- Robbing
- AFB

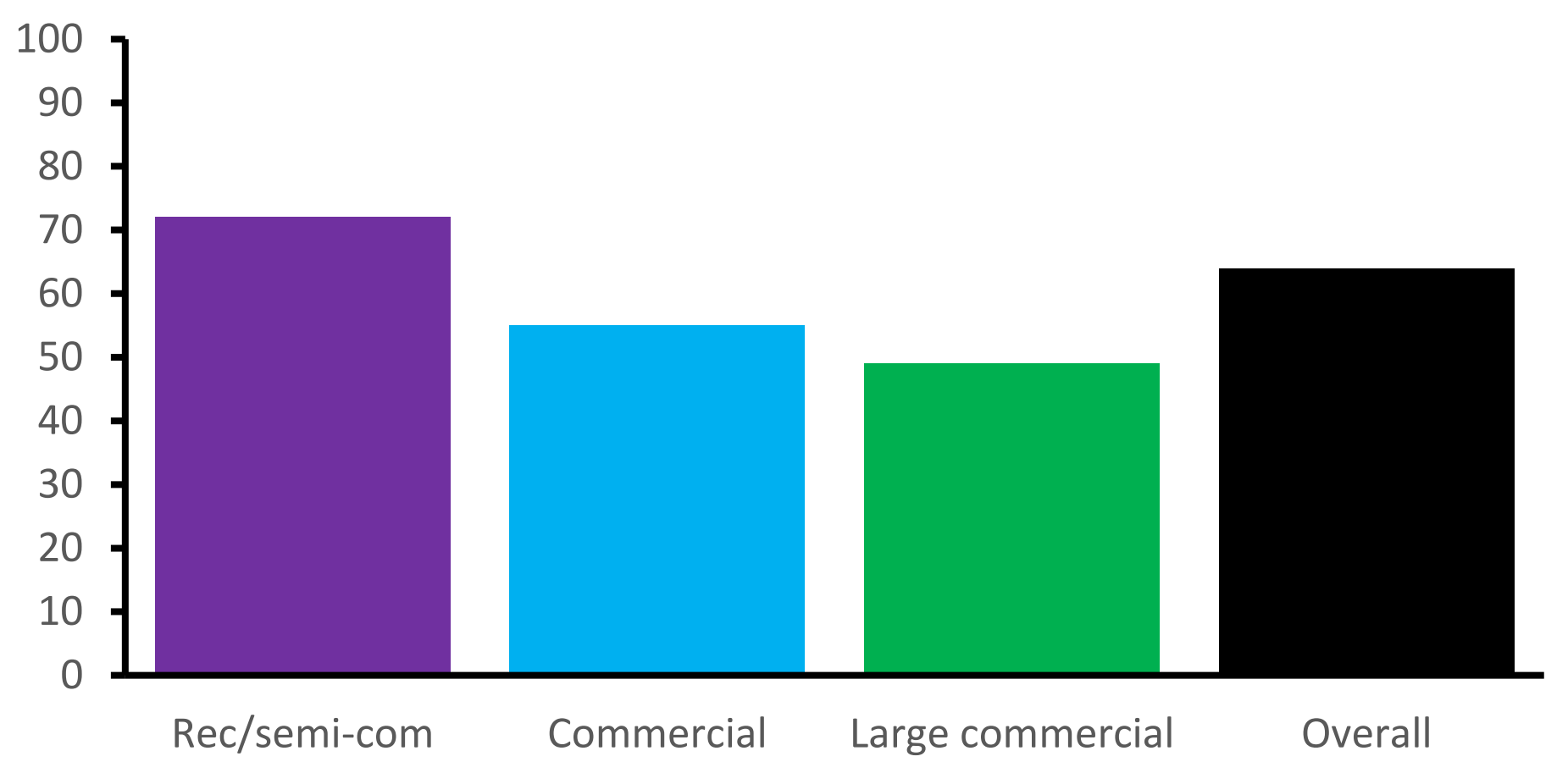
52% are happy with available info on queens



Highly desirable information

- What traits are selected for
- Performance records/estimated breeding values/line traits
- Genetics/line/pedigree

64% are happy with the quality of queens



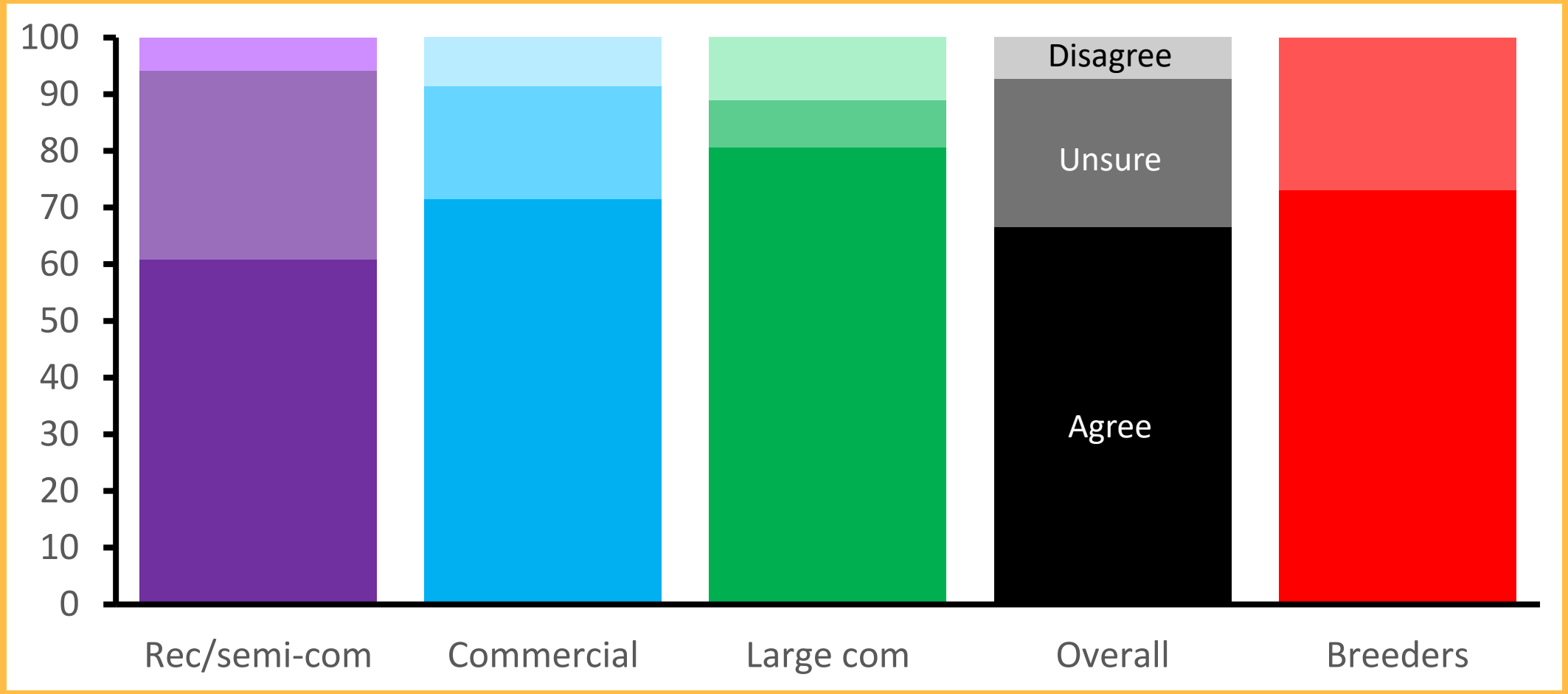
Reasons

- Reputation or track record of queen breeder
- Personal relationship with queen breeder
- Traits (temperament, honey production)
- Reliable

- Variable quality
- Produced for quantity not quality
- Poorly mated, poor brood pattern, drone layer
- Fail, superseded

Concerns with regard to Plan Bee	Beekeeping operation size				Queen producers
	<200	200-800	>800	Overall	
Availability and cost of queens	49.5	53.1	45.5	49.4	54.5
Resources will only be made available to a few queen producers	47.7	43.8	54.5	48.3	45.5
Testing needs to be done in a variety of climates	46.8	46.9	42.4	46.0	27.3
What will happen when the funding runs out	45.9	34.4	48.5	44.3	63.6
Cost	33.9	12.5	30.3	29.3	54.5
Government interference	27.5	28.1	30.3	28.2	27.3
It won't select for traits that are meaningful to beekeepers	15.6	12.5	36.4	19.0	27.3
Lack of information	13.8	25.0	30.3	19.0	27.3
Loss of support	14.7	15.6	33.3	18.4	27.3
Inbreeding	14.7	9.4	9.1	12.6	9.1
Too complicated	7.3	6.3	12.1	8.0	0.0
It will fail	1.8	6.3	15.2	5.2	9.1
Disruption to industry	4.6	3.1	6.1	4.6	9.1
It will compete with my business	1.8	0.0	3.0	1.7	9.1
n	109	32	33	174	11

Use of modern genetic techniques will increase chance of successful program



Queen breeders (1 1)

- All interested in implementing standardized selection practices

- All agree that standardizing selection practices has the potential to improve selection outcomes

What stops you performing more selection?

- My customers are already satisfied (36%)
- Queen price versus cost to produce (36%)
- Time (27%)
- No interest (0%)
- No market (0%)

- Difficult to find remote sites for drone flooding
- Field evaluation by commercial beekeepers takes time to build trust and mutual understanding

How can Plan Bee best serve the industry?

- Make info open, transparent, effective
- Listen
- Breed quality queens with key traits
- Provide evidence
- Ensure genetic diversity
- Make the program for everyone
- Make queens affordable

Recommendations

- Work with queen breeders to enable them to select the best stock within their operation
- Provide a website where queen breeders can record key information about their queens
- Provide education on the importance of quality queens

Recommendations

- Make data and information accessible
- Provide evidence of progress
- Develop a distribution model
- Ensure that the Plan Bee program is sustainable, to provide certainty that it will continue beyond the current project lifecycle and that the investment made by participating queen breeders will pay off long-term

Why participate?

- Inform Plan Bee and queen breeders what traits you want
- Let Plan Bee know what your concerns are
- Help guide Plan Bee

Liz Frost