



WORMWISE STRATEGIC REVIEW

Opportunities to strengthen the impact of Wormwise to improve parasite management and address drench resistance in New Zealand livestock farming

Dan Brier, Chair Wormwise Trust

Blue Circle Consulting | 2021

Report on Wormwise Review, 2021

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Executive Summary

1. A strategic review of Wormwise was initiated in 2021 to inform its future work programme and role in addressing issues of parasite management and drench resistance for New Zealand livestock farmers. The review was conducted through interviews with Wormwise participants and stakeholders, a survey of farmers and a workshop held in May 2021.

Current context

2. The situation of drench resistance is believed to be getting worse and assumed to be increasing to a level at which parasites pose higher current and future risks to the productivity or profitability of farms and to animal welfare (to be validated by data).

3. Wormwise has built good information for farmers and vets, contributed to clear and aligned advice and brought passionate and skilled people together. However, there is a gap between the advice available and what is happening on the ground (i.e. the general perception is that drench resistance is becoming more prevalent), along with conflicting and misaligned messages and incentives in the market. Comprehensive data on the status of drench resistance at a national or regional level is lacking, in part due to the need for better and faster testing methods. These factors point to the need for Wormwise to take a whole-of-value chain approach.

5. New challenges are also on the horizon: increased compliance pressures on farmers; resource-intensive sector programmes on water and climate change; potential increased risk from new or more widespread parasites in New Zealand arising from climate change; low likelihood of new drench products becoming available, and greater transparency demanded by consumers on animal welfare and use of chemicals in farm production systems.

Possible future approach

6. To achieve a collective (and refreshed) aspiration that *'Internal parasites no longer pose significant risks to animal welfare, sustainability, productivity or the reputation of New Zealand livestock production'* requires transformational change in current approaches to the use of drench, encouraging lower and/or more targeted drench use, and encouraging alternative options for parasite management such that drenching is sustainable.

7. To address increasing drench resistance, the slow pace and small scale of farm level change and changing market expectations, six areas of action have been identified:

- Farmer education: To empower farmers with knowledge and tools to act
- Rewards for good practice: To create 'pull' for practice change at farm level
- Non-farmer education (eg veterinarians, stock agents, sales people, breeders): To improve advice and support to farmers
- Product (drench) stewardship: To align market drivers with sustainable and appropriate drench use
- Data and Evidence: To provide a solid foundation for action and investment
- Wormwise Resourcing: To support collaboration and coordination to achieve these objectives

8. Desired outputs across these areas of action are a dedicated Wormwise resource, enhanced engagement with farmers, development of a voluntary Code of responsible marketing and sales of drench, a National Drench Resistance Survey & Modelling capability, a benchmarking study of the costs/benefits of parasite management approaches, improved testing options, and integration of

Wormwise materials into relevant sectoral formal and informal training, education and professional development.

9. A priority need has been identified to plug key information gaps relating to the nature and scale of the drench resistance problem and the potential costs or benefits to farmers, and a deeper understanding of the most effective actions to take to support change across the value chain.

10. In addition, two critical preliminary decisions for making progress and unlocking support for many of the actions identified are whether to pursue a full or part time dedicated Wormwise resource, and whether to start the process of making funding applications for a baseline survey of the current status of drench resistance levels in NZ.

11. A proposed action plan has been developed with four workstreams of:

1. Incentivising/rewarding farmer practice change
2. Education and engagement
3. Product stewardship
4. Data and Testing

12. These require a mix of continuously improving Wormwise current activity, working with key partners and some new investment. The Review confirms that there is a role and need for Wormwise in the future, support for boosting its activities and visibility, and a desire to see it better resourced in order to have more impact. The proposed action plan also reflects an evolution in thinking beyond influencing farmers directly or through their veterinary advisers, to a whole-of-supply-chain approach.

Recommendations

13. It is recommended to:

- Review the proposed Action Plan with key partners in order to identify the priority projects they agree with and would support, including those where the initial phase may be a project to develop the business case for investment.
- Make some early go/no-go decisions:
 - Whether it is feasible to have a dedicated Wormwise resource. Making this decision is a critical determinant of how the proposed Action Plan could be implemented.
 - Initiate work on the Voluntary Code of Conduct. This has the potential to be a powerful and impactful tool and now needs further discussions with industry stakeholders to gauge levels of support and to develop a plan for implementation, and consideration of unintended consequences.
 - Engage with both NZFAI and farm planning experts to test the Workshop's suggestions that there are opportunities to integrate parasite management into these existing projects.
- Decide whether to initiate a project to lead to a national survey, for which significant funding will be required. This would be the most sizeable project proposed, but one that could unlock support for many of the other actions. Understanding the magnitude of the impact of unchecked anthelmintic resistance underpins this project (i.e. is it significant enough to warrant a deeper understanding of anthelmintic resistance).

- Develop communications materials to socialise and gain feedback on the outcomes and proposed Action Plan, firstly from Review Participants, their organisations and then more widely with key stakeholder group

Introduction to the review

14. This review was initiated by Wormwise to evaluate the current role and impact of Wormwise and to:

- Clarify the problems or opportunities the sector is facing with respect to parasite management and drench resistance, and the aspiration of participants and stakeholders for Wormwise,
- Identify ideas for approaches that could be taken in the future and options for the 'how' and 'who'.
- Gain clarity around the role of Wormwise and what is needed for it to be successful, and
- Commitments from participants and contributors to taking the work forward.

Methodology

15. Key participants and stakeholders were interviewed to understand their aspirations for and interest in parasite management, views on Wormwise performance so far and what has been learned and any aspects of Wormwise operating environment and context that are relevant.

16. A list of interviewees and summary of views is provided at Annex I.

17. In addition, farmers were provided with an opportunity for input via a Farmer Survey (see Annex II).

18. A workshop was held on 27 May 2021 to review the insights gained from the interviews and survey, and provide feedback and suggestions on:

- The aspiration for Wormwise
- The problems to be solved or opportunities to be pursued
- How these could be addressed and potential strategies

19. This report captures the outcomes of the Review and proposals developed in the Workshop. It provides a basis for further consideration and discussion for the sector and government to decide which strategies to pursue and obtain commitments of resources to do so.

Overview

Current situation

20. The following points summarise the current situation, as understood by participants in the Review:

- Wormwise has built good information for farmers and vets (via website or workshops), but there is a gap between the advice available and what is happening on the ground (i.e. the general perception is that drench resistance is becoming more prevalent).
- Better, faster testing for drench resistance is needed (than the currently used Fecal Egg Count (FEC) method), along with more current and comprehensive data to better inform decision making at all levels, including to make the business case for this strategy.
- Passionate and skilled people are involved in Wormwise, but it is not considered to have the profile or leadership position for the impact desired.
- The common and aligned messaging/advice developed by Wormwise is not sufficient to overcome conflicting and misaligned messages and incentives that continue in the market with regard to the sale and use of anthelmintics.
- It is not just farmers who need to change; everyone has a role to play so future strategies need to address all relevant parts of the value chain.

21. The situation of drench resistance is believed to be getting worse (but with the caveat that there is not comprehensive data on its prevalence or impacts on farm productivity to have confidence at present about this at either a national or regional level):

- Drench resistance is assumed to be increasing to a level at which parasites pose higher current and future risks to the productivity or profitability of farms and to animal welfare (to be validated by data);
- Testing and data on prevalence of parasites in NZ livestock, and levels of drench resistance, is inadequate for effectively assessing and monitoring at the farm level and/or quantifying the impacts at a farm, regional or national level;
- The channels through which drenches are sold and marketed, as well as drench being readily available in the market, create challenges for ensuring responsible drench use;
- Misinformation is still an issue - farmers can receive conflicting advice, industries are at different stages of awareness or action, and vets may not consistently be well equipped/educated/confident to give advice.

22. New challenges are also on the horizon that could make tackling this challenge more difficult:

- Farming is becoming more complex with increased compliance requirements at a farm level, providing opportunities to incentivize improved farm planning and practices, but also creating greater risk that farmers have less 'bandwidth' to focus on parasite resistance or integrating new practices for parasite management;
- Demands on industry and government funding has become more competitive, for example as climate change and water quality become more immediate priorities. More evidence and data on the economic costs and benefits of parasites is needed to prioritise any new investment required on parasite management (R&D or extension).
- There is potential increased risk from introduction of new parasites to NZ, and/or changing the geographic prevalence of different parasites, as a result of climate change;

- The case for commercial investment to develop new anthelmintic products for livestock is uncertain, with a low likelihood of new drenches becoming available, therefore there is a consensus to prolong the use of current anthelmintics across the sector;
- Consumer interest in animal welfare and/or use of chemicals in farm production systems is a growing trend that may impact perceptions of NZ livestock products and/or market positioning aligned to natural/premium value propositions;

Aspirations for parasite management

23. There is support for maintaining the current Wormwise vision as being appropriate and capturing the collective aspiration of participants:

‘Internal parasites no longer posing a risk to animal welfare, sustainability and productivity of New Zealand livestock’

24. However it could benefit from being updated as follows:

‘Internal parasites no longer pose significant risks to animal welfare, sustainability, productivity or the reputation of New Zealand livestock production’

25. This change recognises 1) that elimination of risks is not realistic, but should be able to be managed so as to not post a significant risk to these aspects of livestock production, and 2) that New Zealand’s reputation and social license as a food producer is also potentially impacted by these risks.

26. Views on this aspiration are that it requires:

- transformational change in current approaches to the use of drench,
- encouraging lower and/or more targeted drench use, and
- encouraging alternative options for parasite management such that drenching is a ‘last resort’.

Problems/opportunities that need to be solved

27. Through the interviews and workshop three key problems or opportunities have been identified that the sector must solve to achieve this aspiration (these are hypotheses for now – to be validated by further data and evidence):

1. Increasing drench resistance: Drench use practices are leading to higher rates of resistance and, with low likelihood of new drenches coming onto the market, increased risk that drenching may not be a viable or effective tool for parasite management in New Zealand in the future.
2. Slow pace and small scale of farm level change: For most farmers, the pain or impact of drench resistance is not visible and/or not material or immediate enough for farmers to be aware they have a problem or be proactive to prevent it becoming a problem (ie confidence to test and manage consequences, take on cost or complexity, take time to understand and implement alternatives to current practices).
3. Closer connection between drench use and the market: Increased consumer interest in animal health and welfare and chemical use in food supply chains could mean there may be new market value to be captured from practice change, or new risks to NZ’s reputation that need to be managed.

Potential strategies and approaches that Wormwise could pursue

Key areas for action

28. In considering these problems and opportunities, the workshop identified six areas of action to address them:

- Farmer education: To empower farmers with knowledge and tools to act
- Rewards for good practice: To create 'pull' for practice change at farm level
- Non-farmer education (e.g. veterinarians, stock agents, sales people, breeders): To improve advice and support to farmers
- Product (drench) stewardship: To align market drivers with sustainable and appropriate drench use
- Data and Evidence: To provide a solid foundation for action and investment
- Wormwise Resourcing: To support collaboration and coordination to achieve these objectives

29. A summary of ideas explored in the Workshop is provided in Annex III. Some specific outcomes were identified as priorities to be achieved:

[A dedicated Wormwise resource](#)

Securing a part or fulltime resource that could oversee implementation of the Plan, coordinate and optimise in-kind resources and contributions, prepare business cases for further investment, build a strong network across all parts of the supply chain to support and encourage action and improve the visibility of Wormwise through communications and engagement.

[Enhanced engagement with farmers](#)

Picking up on best practice across the sector for engaging farmers on parasite management and drench resistance to support behaviour change consistent with minimising the risks of increased resistance.

[Code of responsible marketing and sales of drench](#)

A voluntary code that would be open to adoption for all those involved in the sale and marketing of drench (anthelmintics) to align market behaviours with the objective of maintaining the viability of drench as a solution for parasite management. It would create good practice guidelines and expected behaviours, along with some form of incentive for compliance (eg market incentives) and related training or education needs.

[National Drench Resistance Survey & Modelling](#)

A survey to establish the current situation (to inform actions and investment), provide data for modelling and create a baseline against which progress can be tracked.

[Benchmarking and monitoring of performance](#)

A study or studies to demonstrate the costs/benefits of parasite management approaches based on actual farm experience, across several farm types, species and regions, and providing a benchmark for high/low performance. This could also include using emerging tools such as farm planning and farm assurance schemes to incentivise and/or monitor performance.

[Improved testing options](#)

Limitations and complications of FEC tests are recognised. Tests are needed that are easier for farmers to use, cost-effective and more accurate. Ideally, data collected from increased testing

would be able to be captured and aggregated to provide regional and national monitoring capability.

Training & Education

Integration of Wormwise materials into relevant sectoral formal and informal training, education and professional development channels (veterinary, agricultural science, animal breeding, farm management & biosecurity).

30. The Workshop also discussed the potential for government regulation of anthelmintics to play a role in the future. It was considered to have both upside and downside risks and opportunities, but could potentially also be considered to be more of a last resort if other strategies and options are ultimately unsuccessful.

Resources and information

31. Both resources and data/evidence are key enablers for making progress, and are inter-related. While the Workshop was clear that action need not wait for information gaps to be filled, making the case for more action and increased investment requires more comprehensive and robust evidence than is currently available.

32. The current Wormwise budget is 50k per year from B+LNZ, plus in-kind contributions from those participating. Wormwise has no dedicated resources i.e. people contribute to Wormwise within the context of their 'day jobs' or as passionate volunteers. Either a .5 or 1 FTA dedicated to Wormwise is probably the minimum required to achieve the higher level of ambition articulated by the Workshop.

33. Key information gaps are also making the case for change difficult to substantiate, and effective and efficient strategies harder to be confident about:

1. The nature and scale of the problem:

- a) Data on the scale of drench resistance across NZ to understand the costs/risks and implications, and to make the case for investing resources in the issue. This in turn requires better testing and data capture and reporting.
- b) A cost/benefit analysis of the impacts of drench resistance for a farmer and of different options for parasite management, in order to put numbers around potential to be gained from change. Eg of APRA idea to benchmark high and low parasite management on the curve to be able to quantify gap?

2. The most effective actions to take:

- c) How to ensure communications and engagement activities lead to practice change on farm
- d) What other interventions might work in relation to drench purchase and use.

Potential approaches

34. In considering how Wormwise might implement the actions identified by the Workshop, and in light of resource constraints, these could be broken down into building blocks that could be pursued as resources permit. This includes activities achievable through: continuous improvement opportunities for currently resourced activities that could be achieved without substantial increases in resourcing; delegating some actions to relevant organisations with the resources and expertise to take them forward; or making a business case for new investment.

35. A draft action plan has been developed based on the findings of the Workshop and this review (Annex IV). It sets out four workstreams, and 13 specific projects, and captures ideas from the Workshop on how each could be pursued.

36. This is intended to provide a starting point for Wormwise and its contributors to assess different options and priorities, and the possible sequencing of different initiatives. While most of the actions rely on in-kind contributions, some would require significant further investment such that the priority activity would be to find resources that could develop the business case.

37. Two critical preliminary decisions for making progress and unlocking support for many of the actions identified are 1) whether or not to pursue a full or part time dedicated Wormwise resource, and 2) whether or not to activate industry partners to make funding applications for a baseline survey of the current status of drench resistance levels in NZ. Without these enablers, achieving any of the identified actions will be more difficult.

38. The following table sets out the workstreams and projects (excluding those to obtain specific resources), and how these might be achieved, with more detail provided in the Annex.

Workstream	Project	Continuous Improvement	Partner commitment	Business Case for new investment
Incentivise/reward farmer practice change	Drench use/parasite management included in NZFAP standards		√	
	Cost/benefit analysis of best practice		√	√
	Wormwise Plan and materials included in farm plans		√	
Education and engagement	Effective farmer learning & engagement	√	√	
	Training and professional development	√	√	
Product Stewardship	Code of Responsible Sales and marketing		√	
	Training of sales staff (retail and veterinary)		√	
Data & Testing	National survey on drench resistance			√
	Modelling of resistance trends (regional)			√
	Improved test methods			√
	Scoping of new regime for testing and data collection			√

Role of Wormwise

39. A clear message from participants in this review is that “getting through to farmers” is still the main challenge, and while a strong foundation of knowledge and materials has been established, different approaches are needed to really shift the dial (noting workshop participants gave Wormwise generally less than 5 out of 10 for its impact so far).

40. In general, the challenges (and therefore solutions) relate to being properly resourced and better understanding how to close the gap between the knowledge and advice that sits in Wormwise and actual change on the ground.

41. The actions identified by the group also reflect an evolution in thinking beyond influencing farmers directly or through their veterinary advisers, through to a whole-of-supply-chain approach.

42. No-one is suggesting there is not a role or need for Wormwise in the future. Rather there is support to boost its activities and visibility and a desire to see it better resourced.

43. While in-kind resources are essential to Wormwise success and commitments of in-kind support are valued, there is a strong view that a dedicated Wormwise resource is needed to provide the lynch pin for boosting Wormwise activities and profile, as well as gaining more value from in-kind support.

44. More specific conversations are needed with relevant industry bodies, sectoral funders (e.g. AgMARDT), government and the private sector (animal health companies, processing companies) to understand opportunities for funding for Wormwise, either for operating costs (e.g. an FTE) or specific projects.

45. DairyNZ has indicated it is stepping back from parasite related activities, so engagement with the dairy sector will need to be through different channels e.g. Fonterra or dairy farmer groups.

Recommendations

46. It is recommended to:

- Review the proposed Action Plan with key partners in order to identify the priority projects they agree with and would support (and are prepared to resource), including those where the initial phase may be a project to develop the business case for investment.
- Make some early go/no-go decisions:
 - o Whether it is feasible to have a dedicated Wormwise resource. Making this decision is a critical determinant of how the proposed Action Plan could be implemented.
 - o Initiate work on the Voluntary Code of Conduct. This has the potential to be a powerful and impactful tool and now needs wider discussion with industry stakeholders to gauge levels of support and to develop a plan for implementation
 - o Engage with both NZFAI and farm planning experts to test the Workshop's suggestions that there are opportunities to integrate parasite management into these existing projects.
- Decide whether to initiate a project to lead to a national survey, for which significant financial support would need to be sought. This would be the most sizeable project proposed, but one that could unlock support for many of the other actions.
- Develop communications materials that could be used to socialise and gain feedback on the outcomes and proposed Action Plan, firstly from Review Participants, and then more widely with key stakeholder groups.

Annex I Interviews

List of organisations interviewed, including attendees.

	Organisation	Date of interview	Attendees
1	AgResearch	21/04/2021	Dave Leathwick, Kathryn McRae and Megan Skiffington.
2	Deer Industry New Zealand	21/04/2021	Dave Lawrence.
3	Ministry of Primary Industries	22/04/2021	Karen Booth and Meg Moffat.
4	School of Veterinary Science (Massey University)	22/04/2021	Ian Scott and Anne Ridler.
5	Lincoln University	23/04/2021	Robyn McAnulty.
6	Agcarm plus representatives from pharmaceutical companies	29/04/2021	Jeff Howe (Agcarm). Pharmaceutical reps: Abi Chase, Colin McKay, Penelope Mehrtens, Victoria Chapman and Sean Daly.
7	Veterinary representatives (Wormwise Facilitators)	29/04/2021	Andrew Dowling, John Meban, Anthony Oswald, Dave Roberson, and Emma Dangen.
8	New Zealand Veterinary Association	07/05/2021	Helen Beattie.
9	Farmer representatives	12/05/2021	Mike Cranstone and Donald McKenzie.
10	Fonterra	14/05/2021	Michael Shallcrass and Ash Keon.
11	DairyNZ	14/05/2021	Katie Saunders.

Date:	May 2021
Objective:	Summarise the finding of interviews undertaken with interested parties.
Interviews undertaken by Blue Circle	Sarah Paterson, Jane McLennan

Your interests in parasite management in NZ

What are your organisation's aspirations for parasite management in New Zealand?

All organisations offered a slightly different perspective/lens of their aspirations but there was also a lot of consistency across organisations. High level themes include:

- Sustainable agriculture and responsible use of all products.
- Evidence based advice and decision making, informed by good science.
- Use current tools appropriately.
- Animal welfare should be a priority.
- Maximize productivity in the short and long term.
- Work collaboratively with Wormwise.

There was general agreement that drenches should be retained but management options should be better utilised. Some believe drench should be used as a 'last resort' while others suggested that anthelmintics could be restricted.

There was a general belief that the focus for parasite management in New Zealand has changed. Farms have significant multi-drench resistance and farmers want to know how they can continue to farm profitably in these circumstances.

A few quotes:

"Farms farming effectively and profitably with minimal loss due to parasites."

"To maintain effectiveness of the products we have and ensure resistance doesn't get worse and our current drenches retain effectiveness."

"Make sure other available tools are used appropriately and effectively for long into the future."

"Minimise use of anthelmintics in parasite control."

Where are key gaps between those aspirations and where we are today?

Three major themes stood out:

1. Need to understand the size of the problem.
2. Need to change farmers behaviour. "There is a large body of knowledge to mitigate parasites but we haven't been able to get farmers to adopt these. Now triple drench resistance is widespread and growing."
3. Are still conflicting messages to farmers.

What are key opportunities we could take to close those gaps?

Better understand the size of the problem:

Farmers perceived to have their 'heads in the sand'. "First step is for farmers to understand their level of drench resistance. Need to test to know. Subsidise faecal egg reduction test to get farmers to do it."

Need to better be able to quantify the cost/benefit of parasites on production and profit. Statements included that: "parasites are the number one production limitation for farmers" and "drench resistance is more important to NZ than *M.Bovis*."

Drivers of farmer behaviour (eg lack of knowledge, incentives, apathy) need to be better understood.

More research is required - areas identified include:

- Use of genetics and genomics to identify animals that have better parasite immunity.
- Better/cheaper/easier/faster ways of measuring drench resistance.
- Data on the cost/benefit of drench resistance.
- Compile data from all the labs currently testing for drug resistance. "Need to find out what percent of farms have resistance across all the labs in NZ and compile the data. This used to be done. Australia gets this data by state. That way it's a visible tool."

Another suggested; "Wormwise should be involved in what research gets funded. Be part of the MPI decision making."

Better penetration of messages:

- Educate farmers on tools available.
- Utilise other rural professionals apart from vets.
- Engage with organic farmers. Utilise some of their organic principles for parasite management in conventional farms.
- Two people suggested bringing back Ag-consultants (i.e. government funded independent consultants).

Leverage off existing programmes:

Incorporate messaging/parasite management plan into:

- Animal health plans.
- Farm assurance programmes.
- Environmental plans.

Regulate

There were mixed views on regulating anthelmintics with some respondents in favour of regulation to get traction, while others believed this would be detrimental.

"Anthelmintics should be under veterinary control, like anti-microbials." "The ease of access of anthelmintics make farmers think they can use it without due consideration."

It was also suggested the *Veterinary Code of Conduct* could be better used to promote more responsible approaches to the sale of anthelmintics. “Vets should be judicious stewards of anthelmintic drenches.”

One suggested limiting advertising to end users. “Anti-microbials advertising to farmers has stopped and incentives have stopped for vets. We should adopt this approach. Treat anthelmintic drenches like anti-microbials.”

The other side of the discussion was “I wouldn’t regulate, rather get vets to do more. Not a good idea to take away competition. Vets need to be more proactive with their advice.”

What are key challenges that are or could hinder progress?

There were many ‘challenges’ identified by interviewees. These included:

- Drench resistance is getting worse. “We are going backwards because of drug resistance and chemical inputs on farms are going up.”
- Conflicting advice/messages “Every vet company around NZ has different advice or views on what farmers should do and half are Wormwise facilitators.”
- Selling model is flawed. “Incentives are given to vets to sell drench or farmers are incentivised to buy a particular drench. This needs to stop.” “Advice is driven by sales incentives.”
- Shortage of vets providing management advice and not many young vets appear to be interested in parasitology.
- Farmers need tailored solutions. “Parasite management needs one-to-one work for each farm as each management system and stocking rate is different. It is not one size fits all. Nothing is black and white”.
- The low-risk option is ‘to treat’. Vets suggest treating because they do not want to be told they are giving bad advice.
- Drench is seen as the easy option for farmers. “Lots of education about drenches but not about other tools.”
- Farmers are overloaded and have multiple priorities, with the current focus on compliance.
- Farmers are unaware they have a problem as they are not testing. “Only see drench resistance when drench is really failing. Don’t see early signs. We need to explain what the signs are for early resistance and how best to manage them. If we leave it too late, it’s harder to fix and there are less options”. Most farmers do not want people to know they have parasite resistance.
- “There is the assumption by farmers and vets that new classes of drenches will be developed. This is not the case. Pharmaceutical companies are not investing in research as size of the prize is too small.”
- “Farmers will only be interested when they are out of options, but we need to act now as it will be too late in 5-10 years; new drench is not the solution.”
- “Best approach depends on the farm, so from a farmer’s perspective they have to do a lot of work themselves.”
- “We can’t drench our way out of drench resistance”

Other areas identified include:

- Animal welfare issues caused by parasites.
- Wormwise relies on volunteers.
- Some farming sectors are engaging in Wormwise more than others. “We wouldn’t expect dairy farmers to know about Wormwise.”

What is your organisation seeking to achieve through Wormwise?

This question was answered from the perspective of the organisation. However, there were still consistent themes:

- Consistent unified messaging.
- Evidence based advice.
- Good collegial support.
- Opportunity to be kept up to date with latest research.
- The tools to tailor solutions to individual farms.

Consider the vision and outcomes of Wormwise....

'Internal parasites no longer posing a risk to animal welfare, sustainability and productivity of New Zealand livestock', through 'farmers ... understanding and implementing management practices that minimise the impact of internal parasites in the short and long term' – 2018-2021 Strategy

Overall, what impact(s) is Wormwise having?

There was general agreement that Wormwise has had a positive impact and those interviewed see value in the organisation. Comments included:

- "There is less confusion."
- "The website is useful."
- "The fundamentals of Wormwise are sound."
- "Resources are good but how visible are they and are the right people seeing them?"
- "When you compare where we were before Wormwise, we have come along way."

However, some felt Wormwise had limited impact.

- "Farmers had heard of Wormwise but they didn't know what the messages were."
- "Most of the information is about preventing the development of resistance. Little on how to manage your way out of resistance."
- "We have been talking about it for 20 years but have made no difference to farmer behaviour, so what do we do now?"
- "Farmers go to the workshop and probably learn something, but it doesn't translate into practice change on farm."

What are Wormwise's key strengths?

- Passionate people.
- Known brand, recognised organisation.
- Has highlighted knowledge gaps.
- Technical Advisory Committee functions well.

Key weaknesses?

The key weakness identified by most participants can be summed up in this quote: “The messages are good, it’s the implementation that is the weakness.” Other weaknesses identified by one or more participants includes:

- Little research occurring in NZ.
- No measurables. “KPI’s are numbers of people attending workshops and perhaps hits to website, KPI’s should be based on practice change.”
- Most of farmers not ‘seeing’ production drops related to drench resistance, and therefore do not see it as a problem.
- Wormwise relies on volunteers. Needs a dedicated person to drive the programme.
- Can be slow to respond. Technical Advisory Group (TAG) only meet once per year.
- Farmers getting advice from sales reps rather than vets or other rural professionals.
- There is a disconnect at vet school and practical parasite management is not well taught. Few vets coming through with interest in parasite management.
- Disconnect between what we know and what is being done.
- Reach into graziers perceived to be weak.

What is Wormwise doing well?

- Great job at putting together a package for those who want to access it.
- Supporting facilitators and keeping it alive.
- National touch point – something for NZ.

Not doing well?

- Farmers ability to control worms is getting worse. We are going backwards.
- Mixed messages.
- Not sure if Wormwise know who their target audience is: vets or farmers?
- Need to improve relationship with Federated Farmers and DairyNZ.
- Farmers need to understand it is a long-term game.

What does it need to do more of?

Several of the participants believed a strategy was required to ensure behaviour change. Nearly all participants identified at least one idea that could be included in this strategy. These included:

- Employ one person to be the face of Wormwise. “Can’t be industry person. Good parasitologist should take this lead role.”
- “Need non-biased person to collate and present the data. No one doing this – one source of truth.”
- Personalised case studies.
- Write articles for the farming press.
- Cross-pollinate messages “Sneak messaging in whenever you can.”
- Include Wormwise information in the Beef & Lamb weekly up-dates.
- Tailor messages to different demographics.eg: social media for young farmers.
- Use farmer champions.
- Make it a good story rather than bad story. If farmers see there is light at the other side, then they are more likely to adopt. Include stories on how farmers have ‘improved’ their drench resistance.
- “Discussion group has worked well. We trust each other. Find out other ideas from other farmers.”

- Make Wormwise publications more relatable to dairy farmers (as it is applicable). Could use DairyNZ as a channel to get information to more dairy farmers.
- Leverage off the Australian 'Wormboss' strategy.

Less of?

- Needs to do something different. Cannot do the same thing and expect a different result.

How might Wormwise need to change (goals, strategies, areas of focus, structure or ways of working) to achieve that?

- Recognise the question has changed. New question is how do we farm with drench resistance?
- Focus needs to be meeting the needs of farmers with multiple drug resistance.
- Opportunities for integrated parasite control with animal health, water management, nitrogen etc. Practices that tick multiple boxes (good pasture management, nutrition, planning, well-fed animals).
- Economic pressure on farmers drives short term thinking.
- New technology could provide for rapid and better information for farmers and research.
- Succession planning. Need to support/develop/retain parasitology expertise in NZ.
- Ultimately no-one accountable to make things happen.

What are any key developments or changes in our operating environment that are relevant to how we might address parasite management in the future?

New or emerging risks and opportunities

- Animal welfare becoming more of an issue especially in consumer lead markets. Customers interested in 'whole of life' of animals.
- Consumers are changing, for example some consumers want 'drug-free' meat.
- Farmers require a 'social licence' to operate.
- Climate change. This could lead to new varieties of worms or the 'wormy' season may change.
- Geographical changes. Potential to see more drench resistance in the South Island.
- Advancing technologies.
- Change in practices. Antibiotics given to individual animal but drench entire mob. There could be a move to treat drenches like antibiotics.
- Genomics being used to identify animals that have better parasite immune systems.
- Step up in drench resistance with emergence of a particular parasite and a topical pour on for sheep.
- Change in land use and farming systems
- Potential in the dairy sector for more farmers rearing bobby calves.
- Border control, diseases emerging from overseas including potential highly resistant strains.

Changing needs of farmers

- Farmers perceived to be fearful of change.
- Changing demographics of farmers.
- Need to respond to their ultimate consumer.

Changing expectations of stakeholders

- Wormwise needs to re-connect with the people it set out to engage.

Anything else the review needs to take into account?

There was general support for the Wormwise workshops although some interviewees:

- felt they have not targeted enough people and/or,
- the information gained at the workshop was not translating to practice change on farm and/or,
- messaging at the workshop is not consistent and depends on the workshop facilitator.
- workshops are ad-hoc, and
- perception that dairy farmers cannot access workshops because they are Beef and Lamb funded.

