

Alternative Approaches to Livestock Health Survey Report

January 2022

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Summary Report with Key Findings



Introduction

One of WHAg's aims is to understand which salutogenic practices livestock farmers use successfully, and how these practices impact their use of antimicrobials and other conventional health treatments.

However, apart from 'anecdotal' success stories and case histories, there is little in the way of documented research that includes the farmer's experience when assessing outcomes of alternative approaches to livestock health.

Omitting to investigate and record the experiences of farmers who successfully reduce and/or maintain low or zero usage of antimicrobials, means that the potential for any credible alternatives which may facilitate lower antibiotic usage in farming remains unevaluated.

During 2020 Whole Health Agriculture (WHAg) recruited 221 farmers to take part in a survey on Alternative Approaches to Livestock Health.

The survey ran from May 2020 till January 2021. The inclusion criteria were that respondents must be livestock farmers and use at least one Complementary and Alternative Medicine/Method (CAM) in their livestock health management.

Respondents were recruited via our own network and through our associate organisations. The aim was to collect as much information as possible about farmers' learning and use of CAMs, and the results thereof.

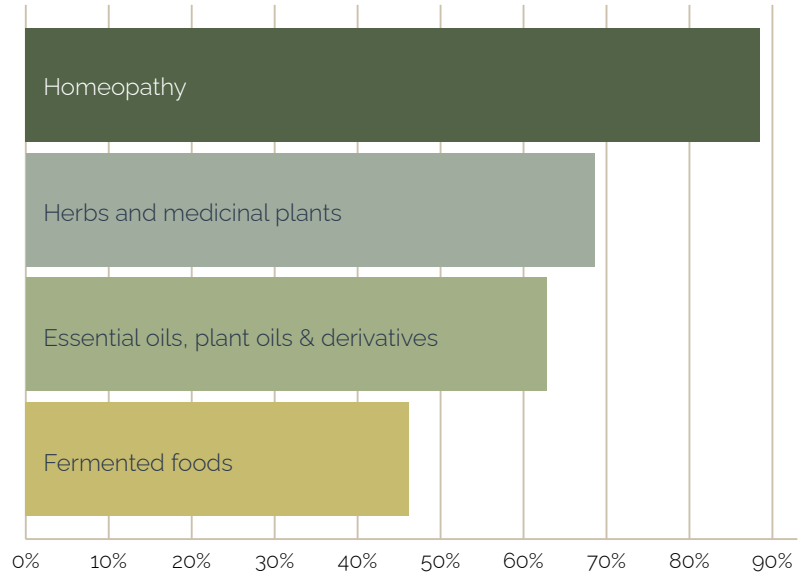
The main enterprises represented by respondents are: sheep, beef, dairy, poultry layers and pig farmers; many are mixed farmers. The size of farm varies from small family farms up to large scale conventional dairy units of 900 dairy cows (median = 150 cows among 70 dairy farmers), with the majority of all farms (80%) being commercial.

Most respondents have done some training in CAMs, e.g. course, webinar (82%). Among the dairy farmers, 95% have done a course.

All percentages given are based on numbers who have responded to each question.

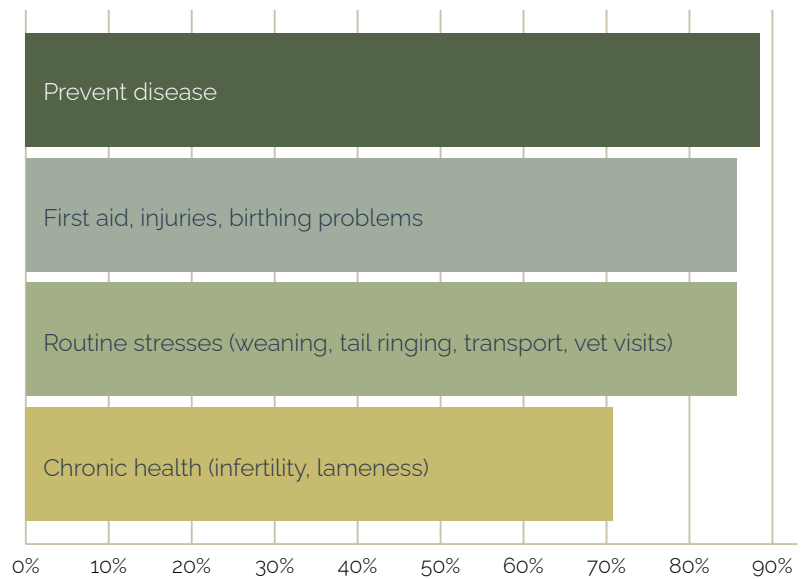
What Farmers Use

The most frequently used CAM is homeopathy (88%), followed by herbs and medicinal plants (68%), essential oils, plant oils and derivatives (63%), and fermented foods (46%).



How Farmers Use CAMs

Most farmers respond that they use CAMs to prevent disease (88%), for acutes/as first aid including infections, injuries, birthing problems (86%), routinely at stressful events such as weaning tail ringing, transport and vet visits (86%) and for chronic health problems such as infertility and lameness (71%).



What Farmers Achieve via CAMs

84% of farmers respond that CAMs have contributed to, or resulted in, improved general health and wellbeing of their livestock, and 65% note lower disease frequency and/or less severity of disease overall.

When we look at specific measurable markers based on figures that farmers are required to record, 66% report lower vet and medicine costs, and 65% respond that their use of CAMs has resulted in or contributed to zero, low or reduced antibiotic usage. Among dairy farmers, these figures are even higher: 71% report lower vet and medicine costs, while 69% report zero, low or reduced antibiotic usage.

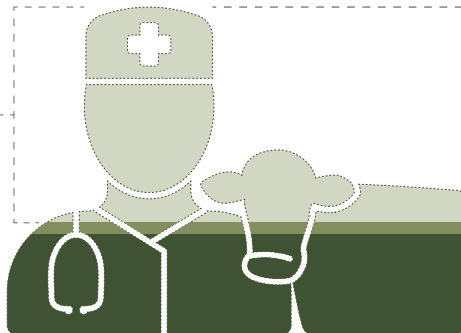
40% overall report zero, low or reduced wormer usage and 36% report reduced frequency or severity of lameness.

One third of all farmers, and more than half of dairy farmers, report increased financial profitability of the farm.

Furthermore, farmers report that using CAMs helps them to: reduce the usage of antibiotics and other antimicrobials (65%), which rises to 69% in dairy farmers; reduce vet and medicine costs (66%), dairy farmers 71%; and improve the overall health and welfare of their livestock (84%) dairy farmers 90%. They also report lower disease frequency and/or reduced severity of disease (65%), dairy farmers 67%.

Over 50% of dairy farmers claim less frequent/severe mastitis and lower cell counts, while an impressive 69% of dairy farmers record fewer cases of milk withdrawal.

66%
OF ALL FARMERS NOTED
LOWER VET AND
MEDICINE COSTS



71%
OF DAIRY FARMERS NOTED
LOWER VET AND
MEDICINE COSTS

65%
OF ALL FARMERS STATED
ZERO, LOW
OR REDUCED
ANTIBIOTIC USAGE



69%
OF DAIRY FARMERS STATED
ZERO, LOW
OR REDUCED
ANTIBIOTIC USAGE

“I can't prove it works, but we get a lot of coincidences if it doesn't!”

Antibiotics

Almost 60% report that CAMs have helped them maintain or achieve low usage of antibiotics and/or reduce their antibiotics usage overall.

24% report that using CAMs has helped them maintain or achieve zero usage of antibiotics. Of these, 80% are commercial farmers.

A third of farmers respond that they have made/are making efforts to reduce antibiotics usage or use no antibiotics at all based on a wish to combat AMR and contribute to the health of their livestock and the wider environment, and/or in response to their customers.

The top three infections successfully resolved without antibiotics are reported to be diarrhoea, mastitis, and infected wounds.

Dairy farmers appear to do particularly well with homeopathy for infections with 74% reporting success for mastitis, 60% for metritis/retained placenta, and 63% stating that homeopathy has resolved cases of scoursdiarrhoea.

It is worth looking at ALL alternatives to antibiotic use as we are fast heading towards the nightmare scenario of antibiotic resistance in human disease treatment. This is too important to ignore!

How CAM has Influenced Farming Practice

According to what farmers report, CAMs have had a significant influence on farming practice. The most frequently reported changes are: a more holistic approach to health management (85%); better observation (82%); and early intervention when there is a problem (71%). Using CAMs has also led 66% of farmers to pay better attention to their animals' wellbeing.

The Veterinary Profession

It is encouraging that 30% of farmers report that their vet is positive towards their use of CAMs. The trend in general, however, is that vets have little knowledge of CAMs and are sceptical, particularly towards homeopathy, which results in farmers keeping quiet about their usage and their successes.

Some report that they find their vet to be led by sales (of products) and that vets seem to see CAMs usage as a threat to their profession. Farmers also report a concern that vets do not support them to reduce antibiotics, and that they sometimes 'push' conventional medicine.

You will get funny comments when you mention you use methods such as homeopathy but don't be deterred. It's all in the best interest of the animals' health and at the same time reducing antibiotics

In the Farmer's Voice

We asked farmers to share their biggest 'Eureka' or 'lightbulb' moments arising from their use of CAMs. Responses largely fall into four themes: becoming empowered around disease prevention; effective stress reduction; success with the treatment of acute; and of chronic conditions.

My most impacting Eureka moment was to realise that PREVENTION is better than cure

When asked what advice respondents would give to other farmers, the most popular suggestions are: be open minded, educate yourself, introduce CAMs step by step, and seek support.

The watery mouth nosode has saved us £1800 over the last three years

I would advise any farmer to think about and use alternative methods to replace routine use of antibiotics and conventional drugs, to see the benefits of alternative medicine for a healthy stock, knowing that you are producing drug-free healthy meat

Discussion and Recommendations

Evidence-based veterinary medicine is built on the following pillars: randomised controlled studies, clinician experience, the owners' values and choices, and the patient's circumstances. In this context and to make informed decisions, the farmer's voice is important. In this survey the farmers have shared insights and knowledge which may otherwise have remained tacit.

Due to the threat of AMR, farmers and vets are asked to reduce the use of antibiotics and other antimicrobials. The role of the vet is also changing; from diagnosing and prescribing towards giving advice on prevention and how to keep animals healthy.

This survey suggests that learning and integrating CAMs has the potential to fill a knowledge gap for both farmers and vets in the quest for better tools to prevent disease and improve livestock health.

There appears to be a growing trend among supermarkets and milk buyers for farmers to reduce antibiotics based on market demand, not just legislation. This is even stronger among the dairy sector with some organic milk buyers aiming to move all their members to Produced Without Antibiotics (PWAB) status.

Based on global health needs, industry trends, and the information on CAMs that our farmers have generously shared with us, WHAg strongly recommends that the potential for CAM-led approaches to livestock health are further investigated and documented, AND that farmers seeking alternatives are better supported, particularly by industry bodies.

The evidence base for modalities such as homeopathy and herbal medicine is growing. The question is, what keeps us back from offering CAMs at least as an optional speciality in agricultural colleges and in veterinary education, as is currently the case in some countries?

Given the continuing threat of AMR, combined with the systemic effects of many conventional interventions used to excess in farming, **can we afford to wait?**

Regular use of CAMs leads to improved livestock resilience, which gives me confidence and a feeling of empowerment

Dairy Summary



Overview of the Use of CAM among Dairy Farmers

From May 2020 till January 2021 Whole Health Agriculture (WHAg) surveyed 221 livestock farmers who use at least one Complementary and Alternative Medicine/Method (CAM) in their livestock health management. The survey was developed in collaboration with, and piloted by, a group of commercial farmers, 4 dairy, 1 sheep, 1 mixed (beef and poultry) farmer.

The responses of 70 commercial dairy farmers who completed the survey are reported in this overview. The minimum unit size per respondent is 10 cows (milkers) and the maximum is 900. (Median number of milking cows per farmer = 150.)

I have not lost any cow to mastitis since I have started using homeopathy



© Jackie Pearce-Dickens

Results of Using CAMs

Health and antibiotic usage

I was able to take a different perspective on health and a deeper understanding of the importance of a healthy environment

67%

OF DAIRY FARMERS EXPERIENCED
**LOWER DISEASE FREQUENCY/
REDUCED SEVERITY OF DISEASE**



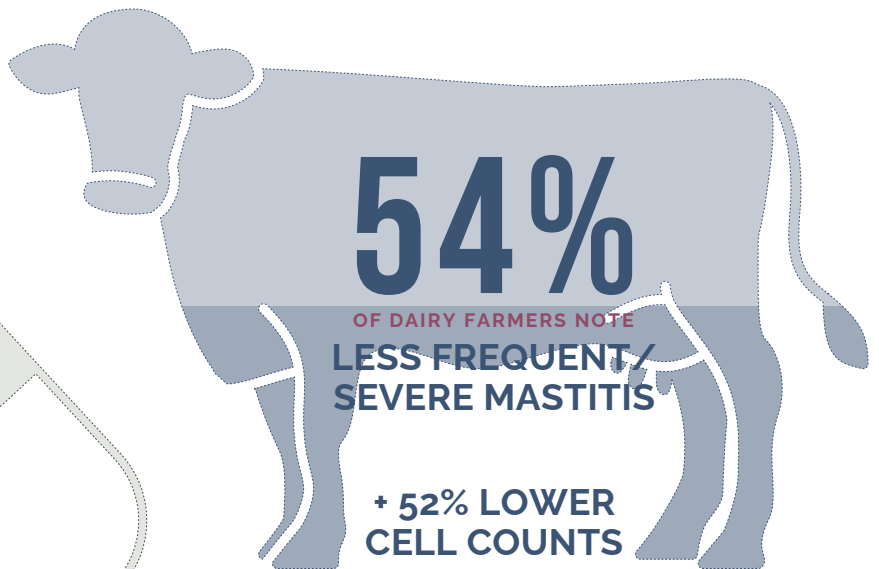
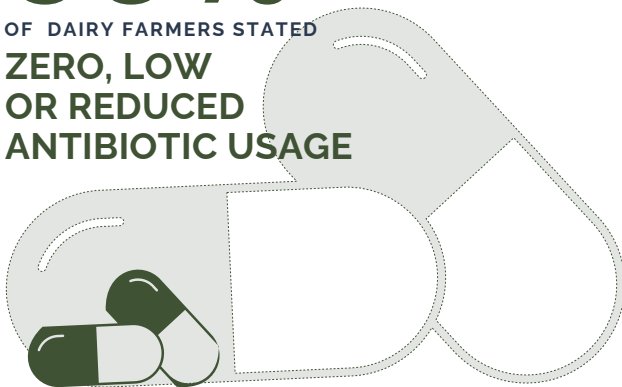
90%

OF DAIRY FARMERS EXPERIENCED
**IMPROVED HERD HEALTH
& WELLBEING**

It has heightened my confidence to take responsibility for the health and wellbeing of my stock

69%

OF DAIRY FARMERS STATED
**ZERO, LOW
OR REDUCED
ANTIBIOTIC USAGE**



54%

OF DAIRY FARMERS NOTE
**LESS FREQUENT/
SEVERE MASTITIS**

**+ 52% LOWER
CELL COUNTS**

Results of Using CAMs

Productivity, Costs & Profitability



69%

OF DAIRY FARMERS STATED
FEWER CASES OF
MILK WITHDRAWAL

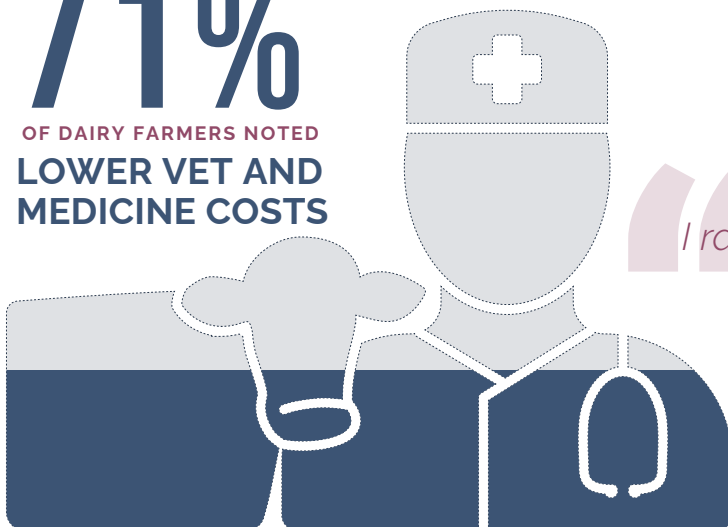


52%

OF DAIRY FARMERS REPORTED
INCREASED FINANCIAL
PROFITABILITY OF
THE FARM

71%

OF DAIRY FARMERS NOTED
LOWER VET AND
MEDICINE COSTS



“I rarely need to use tubes any more”

Results on the Use of CAMs: Dairy Farmers

This question was based on markers that farmers are requested to report, and/or consider to be important.

	Total	Dairy
Improved general health and wellbeing of livestock	84%	90%
Lower vet and medicine costs	66%	71%
Zero, low or reduced antibiotic usage	65%	69%
Fewer incidences of milk withdrawal	26%	69%
Lower disease frequency and/or reduced severity of disease	65%	67%
Reduced frequency or severity of mastitis	30%	54%
Lower cell counts	20%	52%
Increased financial profitability of farm	33%	52%
Higher fertility rate	22%	40%
Reduced frequency or severity of lameness	36%	40%
Lower cull rate/re-stocking rate	26%	36%
Zero, low or reduced wormer usage	40%	31%
Higher live birth rate	24%	22%

The calves come back stronger following homeopathic treatment. Having seen the results, the staff are now willing to bring protocols for treating mastitis into the parlour

Summary of the Use of CAMs among Dairy Farmers

As an industry, dairy farmers are under unique pressure in relation to antibiotic usage. Many milk suppliers (themselves under pressure from their buyers) are setting ambitiously low usage targets, and some organic milk buyers are making Produced Without Antibiotics (PWAB) a requirement of membership.

'Antibiotic-free' is becoming a buzz word among conscious consumers where the dairy industry is also being squeezed by the rise of 'healthier' plant-based alternatives.

For the dairy farmer wanting to make changes, without compromising welfare, there is insufficient information, support or training offering effective alternative health solutions. There is clearly a gap between demand and what is available to health-conscious farmers.

Based on global health needs, dairy industry trends, and the result of this survey, WHAg strongly recommends that the potential for CAM-led approaches to dairy cow and calf health are further investigated and documented. Furthermore, that dairy farmers seeking alternatives are better supported, particularly by industry bodies.

I had a meeting with my accountant today and he said to me wide eyed: "Your veterinary expenses are very impressive, down by a whopping 64% on the previous year"

Our milk buyer has asked the whole supplier group to work towards zero use of critical antibiotics and reduced use of them generally. Apparently this is due to the increased questioning coming from their buyers

Background and Methodology



Background

Whole Health Agriculture (WHAg) was set up in 2019 and is committed to supporting and promoting farmers and farming practices that reduce the need for synthetic chemicals, antibiotics, and invasive interventions.

Critical to achieving our aim is an in-depth understanding of which salutogenic practices livestock farmers use successfully, and how these practices impact their use of antimicrobials and other conventional health treatments.

However, apart from 'anecdotal' success stories and case histories, there was little in the way of documented research that included the farmer's experience when assessing outcomes of alternative approaches to livestock health. Indeed, our searches revealed no studies with livestock farmers on the non-conventional health practices and products that they use and find useful.

We considered this to be an omission that needed addressing urgently, particularly in light of increasing antimicrobial resistance (AMR) which threatens human health and for which farmers are held partly responsible.

Omitting to investigate and record the experiences of farmers who successfully reduce and/or maintain low or zero usage of antimicrobials, means that the potential for any credible alternatives which may facilitate lower antibiotic usage in farming remains unevaluated.

Our priority at WHAg, therefore, was to gather up-to-date information from livestock farmers themselves about any non-conventional methods, products and approaches they use. We determined to collect data via a survey aimed at farmers who use at least one method, modality or product defined as CAMs*.

*For the purpose of our survey we defined CAMs as any non-pharmaceutical method, practice or product including: herbs or herbal remedies, medicinal plants, fermented foods, pre/probiotics, homeopathy, essences such as Rescue Remedy®, neem/essential oils, Uddermint®, Obsalim® technique, CowSignals®, acupuncture, physio/massage, 'energy healing' etc.

Objectives

The overall aim of the survey was to gather information from farmers who incorporate non-conventional or alternative approaches into their livestock health management, in order to identify those practices, methods and products which:

- are used to successfully manage livestock health
- have the potential to reduce or refine the usage of antibiotics and other conventional health interventions
- are worthy of further research and/or knowledge transfer

A key objective was to ensure that we documented real life, experience-based, often tacit, knowledge and practical information from farmers, with the aim that accessing and sharing such knowledge could increase our understanding and help us better support and promote salutogenic farming practices.



Methodology

In 2020, over a period of six months from May till October, with design input from livestock farmers and researchers from organic farming and CAM research communities, we piloted and conducted an online survey using SurveyMonkey. Six livestock farmers were piloting the survey several times before the final survey was sent out to farmers in our network in May 2020.

The survey was co-ordinated and analysed in-house by the WHAg team and with the help of a Data Analyst.

To gain quality data on livestock health management practices and farmer experiences of using CAMs, we used a blend of closed questions (typically 'tick all that apply') with several qualitative, open-ended questions to ensure we got the authentic farmers' voices.

Sample

Inclusion criteria were that respondents must farm livestock and incorporate at least one CAM into their livestock health management system.

In addition to promoting the survey via our mailing lists and social media accounts, we recruited respondents via live farming events such as the Oxford Real Farming Conference, and enlisted the help of Homeopathy at Wellie Level who promoted the survey to farmers who had done their farm homeopathy course. Other organisations helped spread the word via their membership, including the Soil Association, Agricology, Rare Breeds UK, the Biodynamic Association and the Organic Research Centre.

Ethics

Before participating in the survey, farmers were informed that:

- confidentiality and anonymity were guaranteed.
- responses would be used in aggregate form, and any quotations would be non-attributable.

Participants were also asked to agree to their data being stored according with General Data Protection Rules (GDPR).

The project received no external funding.

Acknowledgements

We would like to thank Lindsay Whistance, PhD, senior livestock researcher at the Organic Research Centre, who has given us invaluable feedback throughout the process. Likewise, Philippa Fibert, PhD, Institute of Population Health at Queen Mary, University of London, who gave us input in the early stages and asked useful questions. Anders Sandbu, MSc Data Science helped us analyse the results from Survey Monkey. Your combined hard work, constructive criticism and support have been invaluable. In addition, we are grateful to the pilot group of four dairy farmers, one sheep farmer and one mixed farmer who patiently piloted the survey several times to help us make this survey "a survey by farmers for farmers". Your voices are important.

A warm thank you goes to everybody in our network who helped us disseminate the survey: Homeopathy at Wellie Level, Organic Research Centre, The Soil Association, Agricology, The Biodynamic Association, The Rare Breeds Survival Trust and WHAg farmers.

Respondent Base

221 farmers responded to the survey. The large majority (85% or 187) being farm owners or family farm members. 95% come from the UK and Ireland (179 and 30 respectively), while the remaining 12 respondents, including two farm vets, are spread between Brazil, USA, Austria, Norway, France, Spain, New Zealand and Australia.

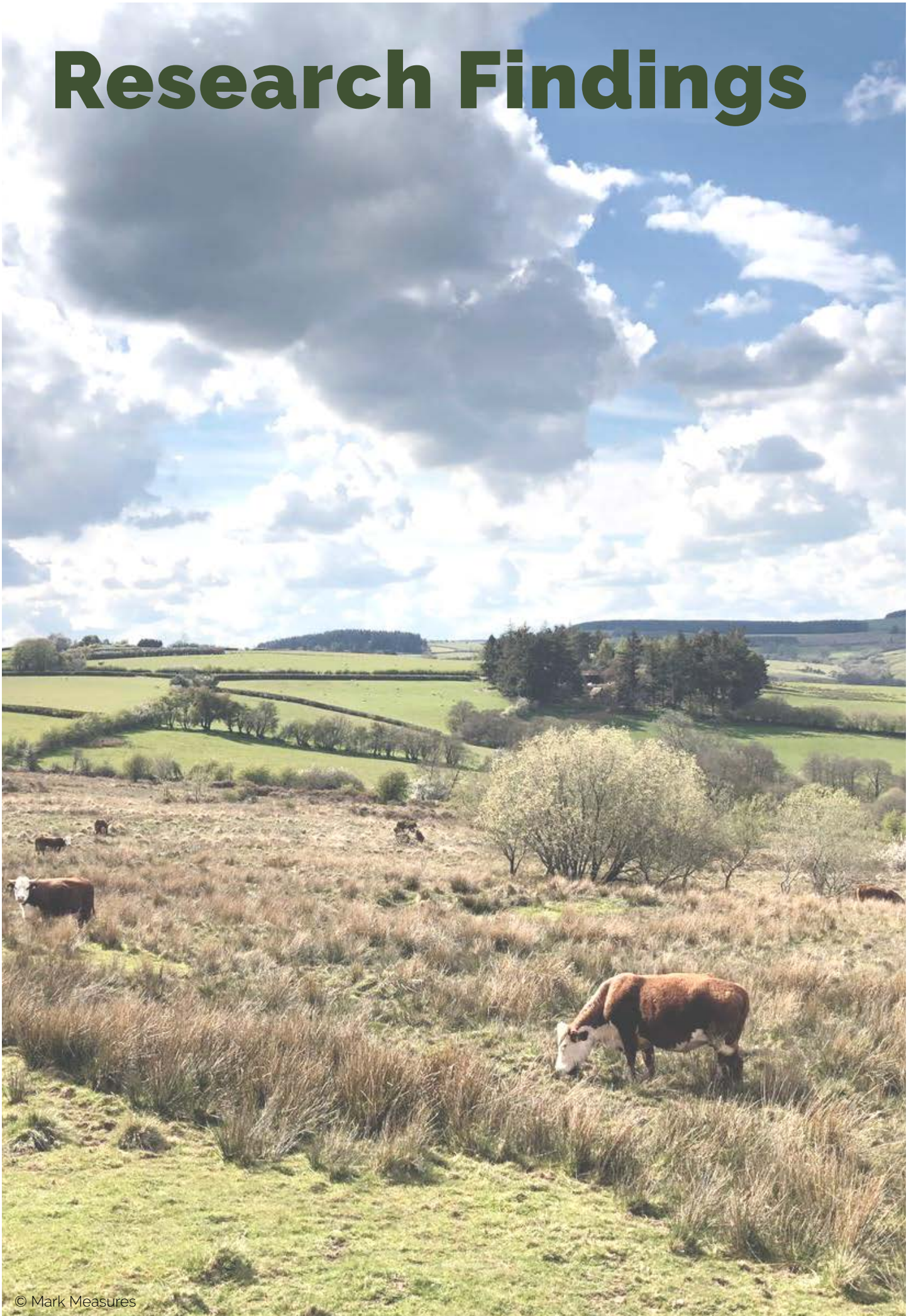
80% respond that they rear commercially or part commercially for national or local supply chains. Some also have international contracts. Two thirds of all respondents farm organically or biodynamically, of which 60% are accredited with certification.

Many respondents run a mix of livestock enterprises, the highest numbers being for beef (53%), sheep (54%), dairy (41%), poultry (37%) and pigs (23%). Other mentions include goats, cameloids and equines.

Median numbers for livestock, (all responses included), whether the main enterprise or not, are as follows: 150 dairy cows (range 1-900), 80 sheep (range 3-1,720), 15 beef (range 2-500), 40 pigs (range 3-500), 50 poultry meat birds (range 10-3000), 20 poultry layers (range 5-1000) and 8 goats (range 1-200).



Research Findings



What CAMs Do Farmers Use?

The CAM used the most by respondents is homeopathy*, followed by herbs, then essential oils. (*NB see sample for context.)

Other products mentioned include: effective micro-organisms, biodynamic preparations, diatomaceous earth for internal parasites and lice, dietary charcoal, colloidal silver.

Other good husbandry practices worth a mention include various pasture management systems to break parasite cycles, selective breeding for resilience, various approaches to minimise livestock stress and optimise livestock wellbeing.

Homeopathic remedies including nosodes	88% (191)
Herbs and medicinal plants, herbal leys, wormers, tinctures	68% (146)
..Essential/Plant Oils (e.g. Tea Tree, Neem) and derived products, e.g. Uddermint®	63% (135)
Fermented foods: e.g. grains, apple cider vinegar, kefir, LAB	46% (99)
Rescue Remedy® or similar e.g. Bach Flowers, Bush Flowers, Gem Essences	40% (86)
Pre/Probiotics	33% (72)
Bodywork: Physiotherapy/Massage/Chiropractic/Osteopathy	24% (51)
Energetic Healing incl. Radionics, Reiki	24% (51)
CowSignals® (Behaviour analysis to prevent illness and disease)	18% (39)
Acupuncture/Acupressure/Shiatsu	9% (19)
Obsalim® (diagnostic and feed adjustment method based on observation)	7% (16)

How Do Farmers Learn About CAMs?

The majority of farmers report that they have taken courses and/or workshops, 82%, the most frequently mentioned being the Homeopathy at Wellie Level (HAWL) course. Farmers also learn from books and magazines, 62%; friends, peers and colleagues, and, of course, the internet, 57%. One quarter have learned/learn from the veterinary profession and 16% have gained information from industry bodies and events. Other mentions include learning from local homeopaths or herbalists.

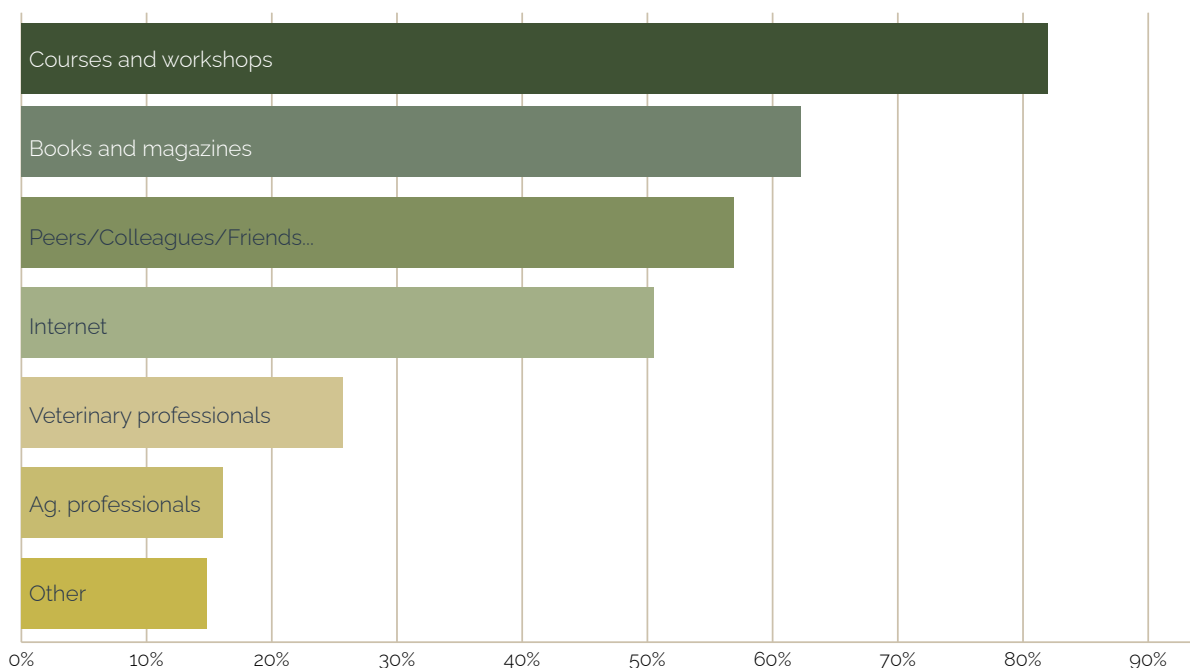
In addition to the HAWL course, the following courses are mentioned: CowSignals®, 'Good Gut, Bad Gut', DASH sheep course, herbal medicine, essential oils, aromatherapy, quantum agriculture, Reiki, various bodywork courses, as well as general courses on soil, pasture etc.

How Do Farmers Use CAMs?

Farmers report that they use CAMs extensively: to prevent disease and/or maintain health (88%); for acute problems (86%); routinely at the time of stressful events (77%) and for chronic health problems (71%).

Preventative or Maintenance: i.e. to prevent disease or maintain optimum health	88% (168)
Acute/first aid: e.g. infections, injuries, birthing problems, wounds	86% (163)
Routine stresses or events: e.g. weaning, de-horning, tail ringing, vet visits	77% (146)
Chronic: recurrent or ongoing conditions	71% (134)

How did you gain your knowledge/learn about the CAMs that you use? (Please tick all that apply)



In the Farmer's Voice: The Use of CAMs

Throughout the survey, it was important to capture the authentic voices of the farmers. Here farmer's share their experiences.

Disease Prevention

Nosode/homeopathic remedy combination for prevention of Coccidiosis - 100% effective. Similar for Rotovirus in calves - reduces severity

Homeopathic Nosodes regularly for TB, BVD, NF eye, footrot, IBR in water troughs

Nosodes for disease prevention

Treatments

CODD in sheep - has been reduced from 60% of lambs affected to 2% of lambs affected, over a 4 year period, since using homeopathic remedy.

Uddermint used at first sign of mastitis in our antibiotic free herd

Three years ago, after attending a Homeopathy at Wellie Level course, I decided to abandon the antibiotics completely for watery mouth. In the subsequent 3 lambings, we haven't lost a lamb to watery mouth

Black honey on open wounds

Use of goat's milk kefir in feeds for orphaned or weak lambs

Reducing Stress

I have seen that homeopathy has helped with the general health of animals after stress particularly cows after birth, calves after weaning, and dis-budding

Aconite is very useful for animals prior to vet visits, TB testing etc. Helps calm them down

Ignatia for weaning + peace and quiet!

Parasites and Pests

Neem oil as a fly prevention in conjunction with Sulphur (homeopathic remedy)

Herbs to prevent worm infestation plus homeopathic remedies

Essential oils used on sheep to prevent flies and ticks

Maintenance of Health

Herbs, cultivated and naturally occurring in pastures

We have diverse herbal leys with natural wormers including chicory and plantain. We are planning to plant black walnut as some fly deterrent spaces for the cattle

Apple cider vinegar in troughs and kefir for gut health

Fermented grains and yoghurt does a better job than antibiotics (poultry)



In the Farmer's Voice:

How CAMs have influenced farming practice

It has encouraged us to reduce the use of antibiotics

Greater enjoyment of farming and better connection with my animals

I feel more in control, more able to deal with issues - planned management rather than crisis management

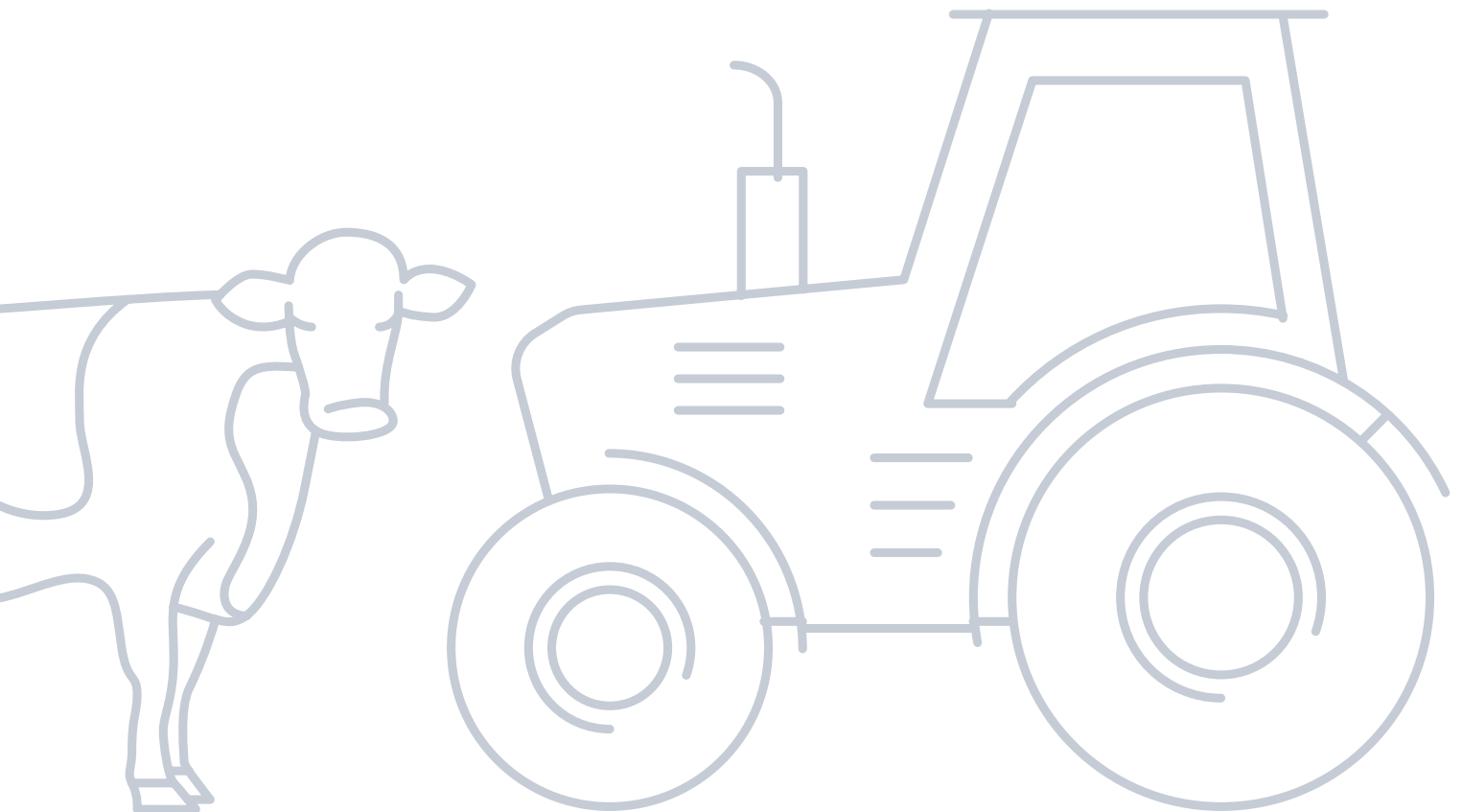
It has heightened my confidence to take responsibility for the health and wellbeing of my stock

I was able to take a different perspective on health and a deeper understanding of the importance of a healthy environment

Working with our farm environment rather than fighting it

Not having to rely on outside interventions, i.e. vets, as most vets have little knowledge of goats

We are better farmers now that we include homeopathy as a tool



What Results Do Farmers Achieve Through Their Use of CAMs?

84% of farmers feel that CAMs have contributed to or resulted in improved health and wellbeing of their livestock, and 65% note lower disease frequency and/or severity of disease overall.

Results	All	Dairy
Improved general health and wellbeing of livestock	84% (157)	90% (52)
Lower vet and medicine costs	66% (124)	71% (41)
Zero, low or reduced antibiotic usage	65% (123)	69% (40)
Lower disease frequency and/or reduced severity of disease	65% (123)	67% (39)
Zero, low or reduced wormer usage	40% (75)	31% (19)
Reduced frequency or severity of lameness	36% (68)	40% (23)
Increased financial profitability of farm	33% (62)	52% (30)
Reduced frequency or severity of mastitis	30% (57)	54% (31)
Lower cull rate/re-stocking rate	26% (49)	36% (21)
Fewer incidences of milk withdrawal	26% (48)	69% (40)
Higher live birth rate	24% (46)	22% (13)
Higher fertility rate	22% (41)	40% (23)
Lower cell counts	20% (38)	52% (30)

What Results Do Farmers Achieve Through Their Use of CAMs?

When we look at specific measurable markers based on figures that farmers are required to record, some of the data stands: 66% report lower vet and medicine costs, and 65% report that their use of CAMs has resulted in or contributed to zero, low or reduced antibiotic usage. Among dairy farmers, these figures were even higher. (See below.) 40% report zero, low or reduced wormer usage and 36% report reduced frequency or severity of lameness. One third report increased financial profitability of the farm.

It has opened up new market possibilities and made me more proud of my product

I have seen a dramatic improvement in my animals' health and wellbeing and increased fertility from 40% to 75% conception to first service in four years

Calf health and vitality has seen a major improvement with less sickness in the calves. I am in more control of my business finance than pre-homeopathy days

Dairy Farmers

(see Dairy Summary for more).

Among the 70 commercial dairy farmers who responded, 71% report lower vet and medicine costs, and 69% report that their use of CAMs has resulted in or contributed to zero, low or reduced antibiotic usage. Also noteworthy is that 69% of dairy farmers report fewer cases of milk withdrawal, and over half note less frequent/severe mastitis and lower cell counts. 52% of dairy farmers have seen increased financial profitability of the farm.

How Has the Use of CAMs Influenced Farming Practice?

When asked how learning and using CAMs has influenced their farming practice, the top three outcomes are: a more holistic approach to health management, 85%; better observation, 82%; and early intervention, 71%.

More holistic approach to health management	85% (161)
Better observation	82% (155)
Early intervention	71% (135)
Greater attention to my animals' wellbeing	66% (125)
Better attention to maintaining causes*	62% (118)
Better record keeping	26% (50)
Improved hygiene	20% (38)
Conversion to organic or biodynamic	13% (25)

Using CAMs has also led farmers to pay better attention to their animals' wellbeing, 66%; and to maintaining causes, 62%. Better record keeping and improved hygiene were noted by respectively one quarter and one fifth of respondents, while 13 % have been influenced to convert to organic or biodynamic.

* *Maintaining causes* is a constant or recurrent phenomena which may prevent healing and/or promote illness, such as poor general husbandry, housing or nutrition, or challenging environment or climate.

We are better farmers now that we include homeopathy as a tool

Industry Trends in Antibiotics

We were interested to understand whether farmers had been requested to reduce antibiotics. In addition to industry bodies and certification organisations moving to reduce critical antibiotics in line with global targets, there appears to be a growing trend among supermarkets and milk buyers for their suppliers to reduce them. This is even stronger among the organic sector with several dairy farmers working towards, or maintaining, zero antibiotics contracts.

A third of farmers respond that they have made/are making efforts to reduce antibiotics usage or use no antibiotics at all based on a wish to combat AMR and contribute to the health of their livestock and the wider environment, and/or in response to their customers.

Our milk buyer, OMSCO, is moving towards PWAB - produced without antibiotics. The aim is to have all OMSCO members as PWAB in the next 2 years. The reason for this is perceived future market demand

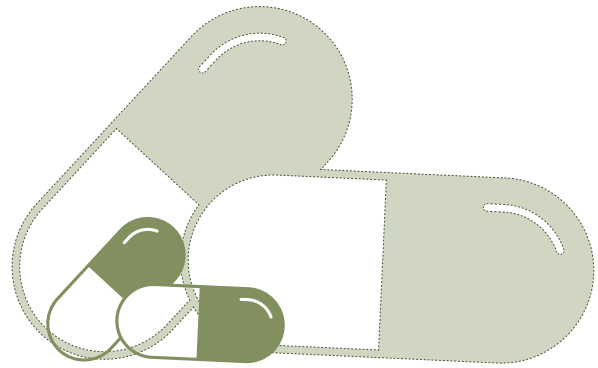
Year on year we have reduced antibiotics and looked to improve herd and flock health in a more preventative way. It is so important that us farmers start doing that. I also want to start supplying direct from farm so customers will want to see that we are using the minimum

Antibiotics Usage

We find that for a majority of respondents, 59%, CAMs have helped them maintain or achieve low antibiotic usage, 57% have been helped to reduce their antibiotics usage and 24% report that using CAMs has helped them maintain or achieve zero usage.

Using CAMs has helped or enabled me to reduce antibiotics	57% (107)
Using CAMs has helped or enabled me to maintain or achieve zero antibiotics status or usage	24% (45)

57%
OF FARMERS USING CAMS
ACHIEVED LOW
ANTIBIOTIC USAGE



Zero Antibiotics

Of the 45 farmers where zero antibiotics usage is reported to have been achieved or maintained, most are commercial, 38% are certified organic, 38% are uncertified organic/biodynamic, 15% are conventional and 10% certified biodynamic.

Conditions Treated Successfully Without Antibiotics

When asked which infections farmers have successfully treated without the use of antibiotics, diarrhoea, mastitis, and infected wounds are the most frequently mentioned.

Success has also been achieved using CAMs for foot infections, lung infections, eye infections, retained placenta/metritis and abscesses/fistulas/ulcers. 'Other' conditions successfully resolved without antibiotics include post-partum infections, sepsis, fly strike and navel ill.

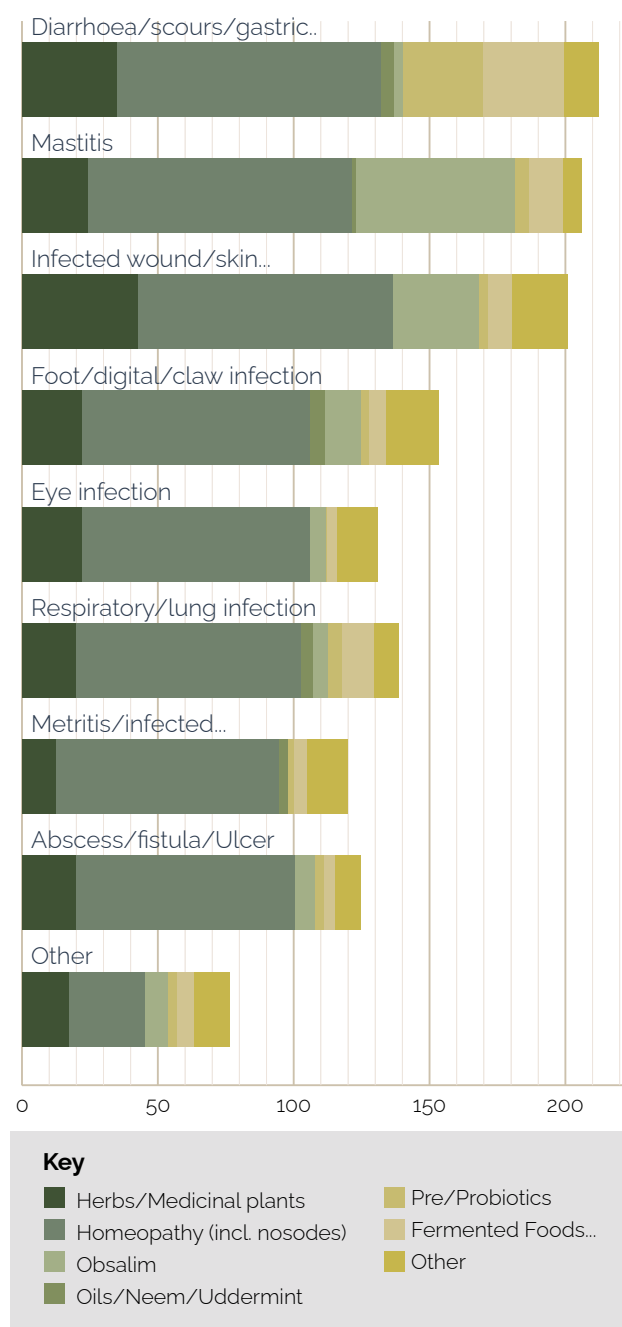
Dairy farmers state that they have successfully treated mastitis with homeopathy, 74%, and oils/Uddermint® (a proprietary product) 63%.

Dairy farmers appear to do well with homeopathy with 60% reporting success for metritis (infected uterus) or retained placenta, and 63% stating that homeopathy has resolved cases of scours/diarrhoea.

Overall homeopathy is the most frequently used CAM followed by herbs, pre/probiotics, and essential oils. In cases of diarrhoea, pre/probiotics and fermented foods are also used frequently to good effect.

For wounds, many farmers successfully use essential oils such as Tea Tree, also Colloidal silver, and honey. Neem and oils are often used to deter flies, ticks and mites. Beneficial micro-organisms, Epsom salts and flowers of sulphur are also mentioned.

Conditions treated successfully without antibiotics



In the Farmer's Voice:

Conditions Treated Successfully Without Antibiotics

Foot rot in sheep - cured with homeopathy. Fly strike - Neem oil

I have not lost any cow to mastitis since I have started using homeopathy

Rotavirus in calves with almost no need of even electrolytes now

Naval ill, complete elimination of antibiotic usage, (one had Metacam)

New Forest Eye has cleared right up using a nosode

Respiratory infections in young calves. Using volatile oils has reduced the spread of disease between calves noticeably

Scours in calves almost eliminated with kefir



Lightbulb Moments

In order to capture authentic farmer's voices and allow for spontaneity, we asked farmers to share any standout successes, or 'Eureka/lightbulb' moments experienced during their use of CAMs.

Responses can be divided into five main categories, which are listed below with quotes from respondents. The 'voice of the farmer' complements and confirms what was found in the closed questions, that CAMs give them tools to prevent disease, treat acute problems and reduce stress, and that with more in-depth knowledge they also find CAMs helpful to treat chronic conditions.

- General
- Prevention
- Treatment of acute problems
- Treatment of chronic conditions
- Stress reduction

Below is a small selection of quotes from the farmers. The response to this question was overwhelming, producing an enormous amount of qualitative data.

General

Using CAMs has affected my entire life, we now use it for all of our animals, both farm and pets, and we also use CAMs for our own health and wellbeing

We have seen an increase in biodiversity on the farm as a whole, both improved soil life and an increase in insects, birds and reptiles due to us stopping the use of chemicals such as wormers and antibiotics. The knock on affect it has is incredible, we will never go back!

I think that everybody on the team has to have the same understanding of health. If not there is a tendency to reach for the antibiotics simply because of not understanding. Education and awareness of the whole team is the key to success.

Prevention

The watery mouth nosode has saved me £1800 over the last three years

Weaning ewes and lambs, all was quiet!

Neem oil for tick control. Tea tree oil for fly control

Use of apple cider vinegar to reduce digestive disorders such as scours

Coccidiosis is my personal standout success. Our vet said the only way to reduce Cocci without e.g. Veccoxan would be VERY good bedding and accepting some losses!

My most impacting Eureka moment was to realise, that PREVENTION is better than cure

Treatment of acute problems

Using remedies on sheep/lambs that look very close to death. Recovery can be miraculous

The standout successes are cows with really bad acute mastitis who have been restored to full health

The lightbulb moment was about 40 years ago with Secale for metritis, the first time we used homoeopathy with instant success

Lightbulb Moments

Treatment of acute problems continued

Certainly my treatment of acute mastitis was a stand out moment. I used Belladonna when I first noticed the redness and then Phytolacca the next day. The ewe was feeding her lambs the very next day. I was the only person that knew of the treatment. The stockman was amazed

I seem to be getting easier lambings and better survival

Cocci nosode on sick piglets and whole farm cleaned up over time

Husband convinced by use of Pulsatilla 1M for retained cleansing following advice in Ainsworths Herdsman's book - he couldn't believe the speed of response

Wound infection with antimicrobial resistant bacteria healed by homeopathy

Patiently treating a 17 year old Dachshund dog that had gone totally lame, and the vet wanted to euthanise, with Arnica pills and massaging with Weleda Arnica oil

Treatment of chronic conditions

The most useful tip for me was identifying CowSignals® and looking at the whole animal and not just the visible problem

The first time we used homeopathy in any scale was to treat ringworm in young stock. The conventional option would be to add (at the time) Grisavin to their daily concentrate feed for three weeks. They were past needing feeding and so that would have been an extra cost. We added the Baccilinum to the water trough and within three weeks the ringworm was cured. Truly seeing was believing!

We use Pulsatilla and Sepia to help with infertility

Observing Obsalim® signs on the cows which alerted me to check the calibration of the cake feeders which had just been serviced, they were feeding far too much, the cows would have become acidotic

Kreosotum for CODD in sheep's feet. CODD in effect rots the foot away. I thought about Creosote as a preservative used to stop timber rotting hence that made me think about Kreosotum. *Homeopathic remedy*

Stress reduction

Observation of the whole animal is important as is treatment of the whole animal just illness or injury. Spending time being mindful with them is a very important part of healing and maintaining good health. A stress-free animal is a healthy one

The use of Aconite, AAA and Ignatia has meant that even the most frightened animals can be handled by just one person which means they are dealt with more regularly and additional members of staff are released for other duties

Use of homeopathy at lambing and suddenly realising that the whole lambing shed was quiet and just full of the sound of contented ewes and lambs rather than the usual cacophony

The use of homeopathic medicine on beef cattle loading onto a lorry for the first time to go to slaughter, calmly and quietly to the shock of onlookers and obviously taking the same remedy myself

The Veterinary Profession

Around 30% of farmers report that they have had a positive experience with their vets regarding their use of CAMs. On the other hand, many farmers do not tell their vet that they use CAMs and especially not that they use homeopathy, as they are often met with skepticism, or fear, rejection.

Some farmers report that they find their vet to be led by sales (of products) and that vets seem to see CAMs usage as a threat to their profession.

Responses can largely be divided into these categories: According to farmers' experience, vets are:

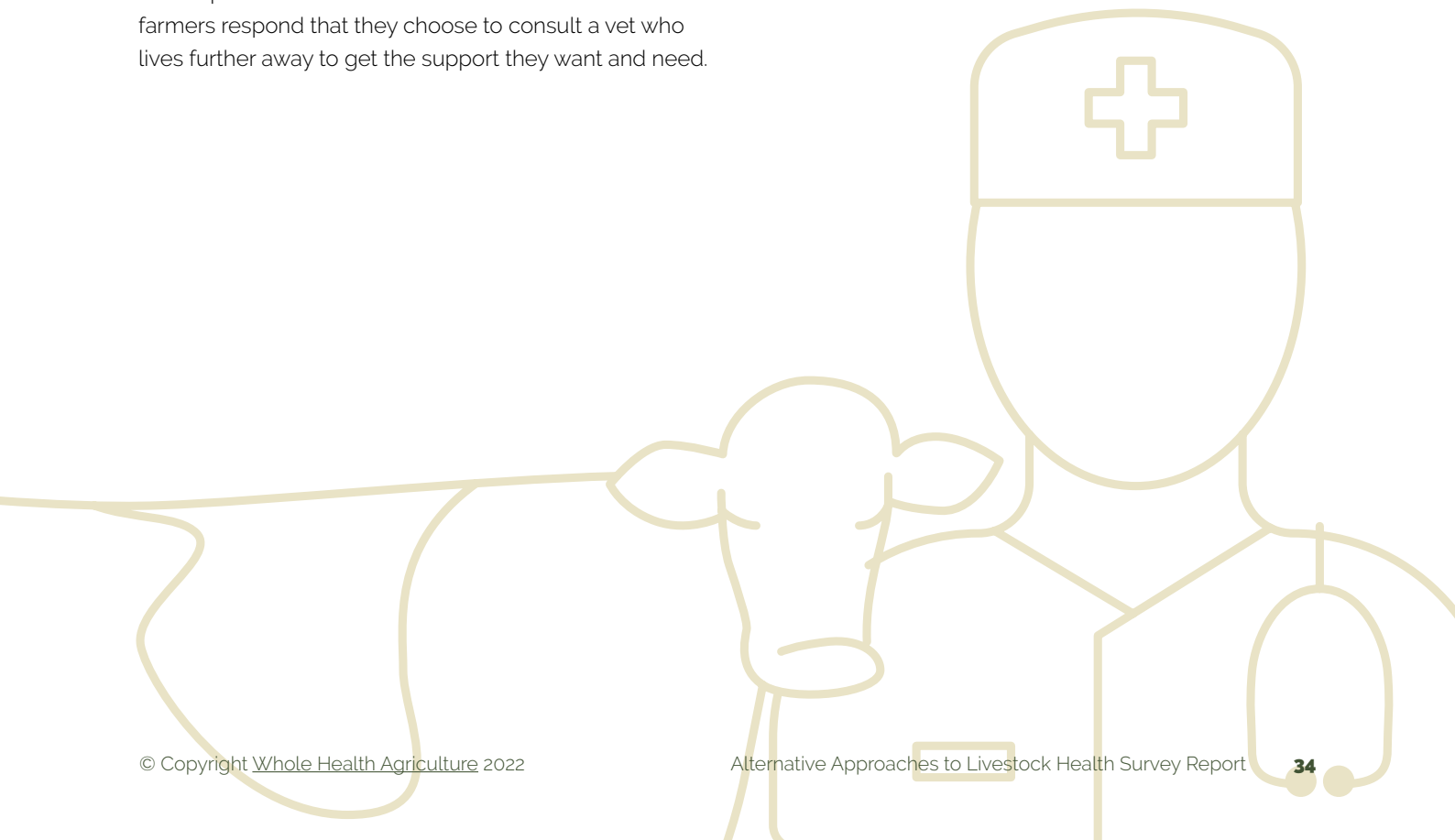
- Supportive and knowledgeable in CAMs
- Supportive although lacking knowledge
- Neutral or mixed
- Negative

Several farmers report that their vet is positive and sometimes surprised at their results of using CAMs. The trend in general is that vets have little knowledge of CAMs, are more sceptical towards homeopathy and more open to herbs and other interventions. Some farmers respond that they choose to consult a vet who lives further away to get the support they want and need.

There are opposing opinions on whether younger or older vets are more open to CAMs and to learning more; some say younger vets are more interested and others that they tend to reach for the antibiotics more quickly than older, more experienced vets.

Farmers also report a concern that some vets are not encouraging them to reduce and refine antibiotics usage, and that they sometimes push conventional medicines that the farmer does not want to use.

From the replies, a supportive relationship between farmers and vets seems to come from good communication and vets seeing that farmers are keeping animals happy and healthy.



In the Farmer's Voice: The Veterinary Profession

Supportive and knowledgeable in CAMs

EXCEPTIONAL!!!! We are very lucky to have our vets work with us on the farm, as previously explained. Having a local homeopathic and herbal practitioner is priceless, and they are invaluable to our system!!!

Poor at the start but brilliant now! He is (supportive) after realising there are other ways! And starting to think outside the box

Supportive although lacking knowledge

The vet seems to be using antibiotics less himself and doesn't mind me using homeopathy

It seems to me that most vets don't mind as long as the animal(s) are not suffering. I have had one or two incidents where I have called for a vet (calf bloat) and the vet did not hold out much hope for animal... A couple of weeks later when they would inquire about the animal, (I could tell them that)... the animal made a full recovery

Enthusiastic about the whole approach of organic farming practices and the benefits of a less intense system

Neutral or mixed

The vets in my local practice don't seem to know a lot about it. I have to ring other vets for advice

Not enthusiastic about "your homeopathy". More enthusiastic about herbal remedies

Mixed reactions from the vets at the beginning, most of them do not embrace homeopathy. However, they now realise that the farm is now nearly completely antibiotic free and want to know more about how we do it

Negative and not willing to discuss

Total rejection!

Not good, one is a believer, most are sceptical, some are down right opposed

Not good, they keep pushing the vaccination route and antibiotics. I no longer mention that I use homeopathic remedies

Advice to Other Farmers

We were keen to know what advice farmers could give others re. the use of CAMs for livestock health. The responses broadly fall into the following categories:

- Be open minded/give it a try/there is nothing to lose and a great deal to gain
- Educate yourself, do a course, keep reading and learning from other farmers
- Introduce it step by step
- Seek support from other farmers and vets
- It will change the way you look at the farm and your animals

I would advise any farmer to think about and use alternative methods to replace routine use of antibiotics and conventional drugs, to see the benefits of alternative medicine for healthy stock and know that you are producing drug free healthy meat

In the Farmer's Voice:

Advice to others

Be open minded/give it a try

Probably the biggest advice would be to give it a chance to work (trust that it will) as in the future we are not going to have the open use of antibiotics so will need an alternative

Imperative for us to decrease antibiotics use; must use CAM as much as possible

I can't prove it works, but we get a lot of coincidences if it doesn't!

Educate yourself

All livestock keepers should be aware of CAMS, and their benefits taught in Agri-courses

It is our lack of knowledge that keeps us down, so keep trying. And keep improving your knowledge by courses, meetings, and books

Introduce it step by step

Pick one or two CAMs to start with, try it out, try some more, talk to others, learn, try out some more. As with any farm this is an ongoing moving process, nothing is stagnant, routine yes, but always developing, things change, new challenges will come, CAMs give so many more alternatives to improved health and profitability

Seek support from other farmers and vets

Look for a veterinarian who is educated and has expertise in CAM, esp. homeopathy

Speak to others. Insist certifiers of organic standards understand and promote!

It will change the way you look at the farm and your animals

You need to completely change the way you look at the farm and your animals. It is not this remedy for this disease and that is for the other. You need a whole wholistic management strategy that is based on listening, looking, smelling, noticing, contemplating and thinking about everything that is going on your farm all the time. Then you will know what is the right thing to do

Unlike the conventional approaches which are more inclined towards a one size fits all model, CAM is more of a tailor-made solution for each animal. It is more about healing individuals than treating specific conditions

I think it is a much more natural, holistic and kinder way of narming and that the welfare and wellbeing of the animals will improve drastically if you use even just a few methods instead of always reaching for the conventional medication

Key trends

From the responses of 221 conventional and organic farmers we find the following trends:

Main objectives and concerns among livestock farmers who use CAMs according to this survey are:

- to improve and maintain the health and wellbeing of their livestock
- to contribute to global threats such as AMR
- to find a vet who is not only supportive but also has knowledge in CAMs
- to get support and recognition for their efforts and achievements
- that the price of food should reflect what is being put into it

Main skills developed from learning and using CAMs are:

- Better observation skills and the ability to take early intervention
- A more wholistic approach to health and health management
- Intuition

Main successes reported are:

- Improved overall health and wellbeing of livestock
- Lower frequency and/or severity of disease
- Reduced, low or zero antibiotics usage
- Lower vet and medicine costs
- Reduced, low or zero wormer usage
- Improved farmer satisfaction

The role of CAMs is reported as being particularly useful in:

- Preventing disease
- Reducing stress
- Treatment of acute infections and injury
- For fertility and around the time of birth
- For human health and the family

The most frequently used CAMs for the above are, in order of highest usage, for all diagnoses:

- Homeopathy including nosodes
- Herbs and herbal medicine
- Essential oils (inc Neem, Uddermint)
- Fermented foods (including apple cider vinegar and kefir)
- Pre- and probiotics

From the open-ended questions, we learn that a majority find that homeopathy is particularly useful to manage stress, around birth, in disease prevention and treatment of acute infections, whereas essential oils particularly are often mentioned as effective in preventing tick/worm/lice infestations.

Discussion and Recommendations

Evidence-based veterinary medicine is built on the following pillars: randomised controlled studies, clinician experience, the owner's values and choices, and the patient's circumstances. In this context and to make informed decisions, the farmer's voice is important. In this survey the farmers have shared insights and knowledge which may otherwise have remained tacit.

Due to the threat of AMR, farmers and vets are asked to reduce the use of antibiotics and other antimicrobials. The role of the vet is also changing; from diagnosing and prescribing towards giving advice on prevention and how to keep animals healthy.

This survey suggests that learning and integrating CAMs has the potential to fill a knowledge gap for both farmers and vets in the quest for better tools to prevent disease and improve livestock health.

There appears to be a growing trend among supermarkets and milk buyers for farmers to reduce antibiotics based on market demand, not just legislation. This is even stronger among the dairy sector with some organic milk buyers aiming to move all their members to Produced Without Antibiotics (PWAB) status.

Based on global health needs, industry trends, organic standards and the information on CAMs that our farmers have generously shared with us, WHAg strongly recommends that the potential for CAM-led approaches to livestock health are further investigated and documented, AND that farmers seeking alternatives are better supported, particularly by industry bodies.

The evidence base for modalities such as homeopathy and herbal medicine is growing. The question is, what keeps us back from offering CAMs at least as an optional speciality in agricultural colleges and in veterinary education, as is currently the case in some countries? Given the continuing threat of AMR, combined with the systemic effects of many conventional interventions used to excess in farming, **can we afford to wait?**

Regular use of CAMs leads to improved livestock resilience, which gives me confidence and a feeling of empowerment

A note on Legislation, Safety and Ethics

The legislative and regulatory framework (Veterinary Act, Organic Standards etc) sets the standard to encourage and safeguard competent and ethical veterinary and farming practices, to engender health, safety and welfare of public and animals.

Safety in this context should include what is safe for veterinary use/the animals, what is safe for human consumption and what is safe for the environment. As an example, any toxic substance used as tick repellent or wormer will eventually end up in the food chain and also in soil and water.

Hence WHAg would go further than the regulatory framework and encourage practices that ensure:

- Sustainability of farming practices
- The wellbeing of the soil and ecosystem
- Animals get to thrive, rather than just exist

To achieve best results, any health system (be it CAMs or conventional), should be used appropriately. The current meat hygiene regulations will mean that good inspection practice will continue to create products that are fit for human consumption. This applies just as much to farms using CAMs as it does to other farms.

By encouraging good farming practice, the quality of food produced will be optimised.

Food safety is likely to be enhanced by the use of CAMs, with the huge majority of practices not creating any risk of food contamination. Herbal products have been extensively researched for use in humans. The majority of commonly used products have a high safety margin and a large amount is known about the potential toxicity of the small proportion of plants that can be toxic. Current legislation and knowledge will flag up potential concerns around certain herbal products. Such products should always be used appropriately if there is any concern around significant levels of phytochemicals continuing into the food chain, in just the same way that precautions are used for chemical agents.

By appropriately applying CAMs at a farm level following the WHAg Integrative Holistic Approach, animal health, safety and welfare will be encouraged above and beyond current legislative frameworks.

Glossary



Glossary of Terms

Anthelmintics	Anthelmintics or antihelminthics are a group of antiparasitic drugs that expel parasitic worms (helminths) and other internal parasites from the body by either stunning or killing them.
BVD	Bovine viral diarrhoea.
Complementary and Alternative Medicine (CAM)	<p>Definition of CAM adopted by Cochrane Collaboration: "CAM is a broad domain of healing resources that encompasses all health systems, modalities and practices and their accompanying theories and beliefs other than those intrinsic to the politically dominant health system of a particular society or culture in a given historical period."</p> <p>*N.B. For the purpose of our survey we defined CAM/CAMs as any non-pharmaceutical method, practice or product including: herbs or herbal remedies, medicinal plants, fermented foods, pre/probiotics, homeopathy, essences such as Rescue Remedy®, neem/essential oils, Uddermint®, Obsalim®, CowSignals®, acupuncture, physio/massage, 'energy healing' etc.</p>
Calf scours	Calf diarrhoea (a symptom of various causes).
Coccidiosis	Coccidiosis is a parasitic disease of the intestinal tract of animals caused by coccidian protozoa. The primary symptom is diarrhoea which may become bloody in severe cases.
CODD	Contagious ovine digital dermatitis.
CowSignals®	A method focused on dairy cow wellbeing to alleviate stress; based on observing and interpreting behaviour, posture and physical characteristics of cows, developed by Dutch veterinarians.
Diatomaceous earth	Diatomaceous earth is a naturally occurring, soft, siliceous sedimentary rock that has been crumbled into a fine white powder.
Drying off	Drying off ends the lactation phase. The dry period allows the cow and her udder to recover and be prepared for her next lactation.
Essential Oils	An oil derived from a natural substance, typically a plant, which has therapeutic properties, e.g. anti-fungal, anti-bacterial.
Fermented Foods (e.g. kefir, apple cider vinegar, yoghurt, kombucha)	Fermented foods are produced through the controlled growth of beneficial bacteria, which preserve and enhance the food's nutritional benefits.
Herbal medicine	A plant or plant part or an extract or mixture of these, or the art or practice of using herbs and herbal preparations to maintain health and to prevent, alleviate, or cure disease.
Homeopathy (aka homoeopathy)	Homeopathy is an established system of medicine which supports the individual's own healing process, stimulating a state of dynamic homeostasis (or optimum balance), thereby minimising susceptibility to disease and fostering resilient health.
IBD	Inflammatory bowel disease.

Glossary of Terms

Korean natural farming	Korean natural farming is a self-sufficient farming system that involves the culturing of indigenous microorganisms (IMO) – bacteria, fungi, nematodes, and protozoa – in place of inorganic fertilizers to produce fertile soil.
LAB (Lactic acid bacteria)	The lactic acid bacteria (LAB) are a group of bacteria that include genera such as Lactobacillus, Lactococcus, Pediococcus, Enterococcus, and Streptococcus and are frequently found in dairy fermented foods.
Metritis	Metritis is an inflammation or infection of the uterus. It often follows retained placenta.
Nosodes	Specialised homeopathic remedies that are prepared from morbid material using a clinical process of dilution and succussion until no molecule of the crude substance remains.
Obsalim®	Developed by French veterinarian Bruno Giboudeau and farmers, this system is a dietary adjustment method for ruminants based on a specific observation technique. (Obsalim® = 'observations alimentaires')
Orf	Orf is a highly contagious viral skin condition of sheep and goats. Severe cases can prevent youngstock from suckling.
Postparturient hypocalcaemia (milk fever)	A disorder characterised by abnormally low levels of calcium in the blood (hypocalcaemia) commonly within three days of calving at a time when the cow's production of milk has put a severe strain on its calcium stores.
Salutogenesis	The term describes an approach focusing on factors that support human health and well-being, rather than on factors that cause disease.
Watery Mouth Disease (WMD)	Bacterial disease of neonatal lambs, especially in an intensive indoor situation.

Appendix 1

Literature Review



Literature Review

The list of published studies and books included in this review is not exhaustive. It is mainly focused on published systematic reviews and metastudies, and includes a few books on CAM veterinary products and practices such as: herbal medicine, Apple Cider Vinegar (ACV), essential oils, kefir, pre- and probiotics, homeopathy, fermented foods, seaweed, and the methods CowSignals® and Obsalim® used in livestock.

Some of the studies discuss the use of CAM in general and in relation to how CAM may play a role in reducing the use of antimicrobials.

No surveys with a similar design and aims were found. Keller et al (2019) did an interview and questionnaire-based study on the homeopathy use on 64 dairy farms in France, Germany and Spain, investigating prerequisites on dairy farms for the use of homeopathy / consideration of homeopathic principles, and on homeopathic treatment procedures.

A survey with vets from the canton of Fribourg, Switzerland, on demographics, livestock herd health management, billing of advisory services and the use of antimicrobials (Gerber, Budd and Bodmer, 2020) was found. It focuses on changes in veterinary practice towards a more advisory role.

At Oxford Real Farming Conference 2021, The 'Natural Worm Control Without Anthelmintics' workshop included a summary of the research being done as part of the EU-funded Replacement of Contentious Inputs in Organic Farming Systems (RELACS) project. This session at ORFC focused mainly on bioactive forages and nematophagous fungi and their potential for controlling worms.

Herbal Medicine

Herbs and herb-based products have a long history in traditional medicine, and are widely used for livestock.

A central work on herbal veterinary medicine is *The Complete Herbal Handbook for Farm and Stable* by Juliette de Bairacli Levy (first edition 1979). Levy describes in detail how herbs can be used to prevent and treat disease.

In a systematic review, Ayrle et al (2016) investigate the prophylactic and therapeutic options for gastrointestinal and respiratory diseases in calves and piglets. They conclude that several plants have the ability to prevent digestive and respiratory problems in livestock. They suggest *Allium sativum*, *Mentha piperita* and *Salvia officinalis* for the gastrointestinal tract and *Echinacea purpurea*, *Thymus vulgaris* and *Althea* for diseases of the respiratory tract. *Echinacea purpurea*, *Camellia sinensis*, *Glycyrrhiza glabra* and *Origanum vulgare* are identified as the most promising for immune system and inflammation modulation.

Mirzaei-Aghsaghali (2012) reviews the use of herbs in animal feeding. He concludes that medical herbs can be added to feed as dried plants or parts of plants and as extracts, and that herbs may improve digestibility, and act as antimicrobial, anti-inflammatory, anti-oxidant and immuno-stimulant agents.

Pomorska-Mol and Kwit (2011) present data to support the effective use and safety of saponins derived from plants as adjuvants in veterinary products.

Rastogi et al (2015) offer a comprehensive review of 45 medicinal plant species that are official in Indian Pharmacopoeia, including plant parts used and pharmacological actions. A relationship between animal and human dose, standardisation and regulatory aspects of these selected veterinary herbals are provided.

In a study from 2012, Shmelberg, Hill and Scott discuss the safety of Chinese herbs. The purpose of this study was to measure major nutrient concentrations in samples of fourteen combination formulas, three single herbs and a mixture.

Analyses suggest that herbal combinations marketed to veterinarians, when fed at the recommended maximum dose, are unlikely to produce clinically relevant changes in the dietary intake of essential nutrients. However, they recommend that levels of aluminium and other non-essential contaminants present in some formulas should be further researched.

Essential oils (EO)

Many farmers turn to alternatives not only because they want to reduce external input, but because there is increased resistance to conventional treatments such as antifungals, antibiotics and other antimicrobials. Hundreds of studies show the effectiveness of essential oils from medicinal and aromatic species. EOs are found in eco-friendly repellents and treatments known to be both effective and safe in humans and animals when used according to recommended dosage and precautions.

Grzesiak, Kolodziej, Glowacke and Krukowski (2018) in Poland studied in vitro use of oils derived from marjoram, oregano, thyme, garlic and mint against *Prototheca zopfii*, an algae frequently causing mastitis in cows and other infections in animals. *P. zopfii* is resistant to most antifungal conventional treatments.

The researchers found that all strains of algae were sensitive to the essential oils marjoram (most effective), thyme and oregano and resistant to mint and garlic oils. They conclude that the studied essential oils at low concentrations are safe, and can effectively prevent and reduce the growth of *P. zopfii* strains, including those resistant to antifungal conventional treatments.

Benelli and Pavela (2018) reviewed current knowledge available on EOs tested as repellents against tick species of veterinary importance, and analysed the effectiveness of pure compounds isolated from EOs as tick repellents and their potential implications for practical use.

Based on the effectiveness and wide use of EOs, they identify areas for further research including the need to develop better formulas and study how the use of EOs may impact non-targeted species in the environment when spraying these products on livestock.

Ebani and Mancianti's study (2020) welcome the increased use of essential oils in veterinary medicine due to their anti-bacterial and anti-fungal properties, the need for alternatives due to resistance to conventional treatments, and the consequences of antibiotics residue in food. In their study, they found that the antimicrobial activity of EOs in vitro on bacterial and fungal strains in both human and animal isolates has been frequently demonstrated.

They ask for more in vivo studies and studies on the toxicity of these natural products in relation to animal species and route of administration. They recommend that before starting a therapy, an aromagram (a test which reveals the essential oils that are effective against an isolated pathogen) should be executed to choose the oil with the best antimicrobial activity.

Pre- and probiotics

Probiotics are foods or supplements that contain live microorganisms intended to maintain or improve the normal microflora in the body. Prebiotics are foods, typically high-fibre foods that act as food for human microflora and are used with the intention of improving the balance of these microorganisms. Synbiotic formulas are produced to provide a balance between specific pre- and probiotics.

Alawneh et al (2020), in a systematic review of the evidence for the use of probiotics to improve health and productivity in calves, asked the question: "In calves aged between birth to one year, is the use of probiotics associated with changes in haematological or biochemical parameters, faecal bacteria count, average daily live weight gain, dry matter intake, or feed conversion ratio?" The study concludes that there is sufficient data to support the effectiveness of probiotic use for the improvement of performance and productivity parameters of calves but that the evidence is weak for other potential probiotic uses in calves such as improved health and reduced risk of disease. However, the risk of methodology bias in this study is reported as high.

Cameron and McAllister (2019) explore current understanding, trends, and emerging applications of probiotic research and usage in major livestock species. They highlight successes in animal health and performance.

Imperial and Impala (2016), in their article: "Addressing the Antibiotic Resistance Problem with Probiotics: Reducing the Risk of Its Double-Edged Sword Effect" underscore the need to screen probiotic strains that are used in both livestock and human applications to assure their safety and mitigate their potential in significantly contributing to the spread of antibiotic resistance genes in our natural environments.

Markowiak and Slitzewska (2018) discuss the definitions of pre-, pro- and synbiotics; all commonly used among

breeders who are looking for alternatives to antibiotic-based growth stimulators, especially after these were banned in January 2006. They define probiotic products as formulas containing bacteria with a beneficial influence on the natural intestinal microflora, and prebiotic products by their indigestibility in the upper digestive tract, fermentation in the intestinal microbiota, beneficial effect on host/health, selective stimulation of growth of probiotics, and stability in various food/feed processing conditions. Symbiotic products are defined as formulas in which a prebiotic component selectively favours a probiotic microorganism.

Included in this paper is also an overview of available products and studies. The authors find that in addition to accelerating growth rate and protect from pathogenic infections, pre-, pro- and symbiotic products may improve other parameters such as absorption of feed and quality of meat, milk and eggs. They conclude that the spending on prebiotic-containing feed will translate to economic profit, and that the use of probiotics, prebiotics and synbiotics is safe, does not have a negative impact on the natural environment, and reduces the demand for antibiotic-based growth stimulators.

Mingmongkolchai and Panbangred (2018) studied bacillus probiotics in poultry, pigs, ruminants and aquaculture. This study highlights the need for future studies to investigate the mechanisms by which gut microbiota interact with host intestinal epithelium cells in order to define selection criteria for potential probiotics. They claim that the effectiveness of probiotics depends largely on the dose ingested and bacterial strains, therefore, it is essential to determine the minimal effective dosage of probiotic strains.

Shredar, Patil and Kumar (2016) analysed milk samples from four groups of cows; three groups were given probiotics and the fourth served as a control group. They found that supplementing with 15g probiotics/animal/day was the most economically beneficial.

Kefir

Kefir, originating in the Caucasus mountains in Russia, has long been used for its health benefits in Eastern Europe.

Farag, Jomaa, EL-Wahed and EL-Seedi (2020) discuss the role of probiotics, prebiotics, additives, and different manufacturing practices in the context of kefir's physicochemical, sensory, and chemical properties. They review kefir's many nutritional and health benefits, underlying chemistry and limitations for usage.

John and Deeseethum (2015) in a review of kefir's therapeutic effects, include a critical revision of the antimicrobial, anti-carcinogenic, probiotic and prebiotic properties of kefir. Other health benefits, like reducing cholesterol and improving lactose tolerance are also discussed.

Apple cider vinegar (ACV)

A review by Samad, Azlan and Ismail (2016) suggests various therapeutic effects of ACV. These include: Increased production and sensitivity of insulin; inhibition of lipogenesis and fat accumulation; and impeded cell proliferation and enhanced apoptosis in cancer cells.

Guided by World Health Organisation's global priority list of antibiotic-resistant bacteria to guide research, discovery, and development of new antibiotics, Yagnic, Serafin, and Shah (2018) investigated how ACV affects *Escherichia Coli*, *Staphylococcus Aureus* and *Candida Albicans*. Their study demonstrate that ACV has multiple antimicrobial potential with clinical therapeutic implications.

Obsalim®

Developed by French veterinarian Bruno Giboudeau and farmers, this system is based on observations of feeding and related symptoms. (Obsalim® = "observations alimentaires").

CowSignals®

A method which is focused on prevention and based on observing and interpreting behaviour, posture and physical characteristics of groups of cows and individual animals, developed by Dutch veterinarians.

Homeopathy

For veterinary homeopathy, The International Association for Veterinary Homeopathy and the Homeopathic Research Institute offer more information and commentary.

Meta-studies and reviews of animal and veterinary research on the effect of homeopathy and other CAMs have, so far, been inconclusive (Clausen, Albrecht and Mathie, 2013; Mathie and Clausen, 2014, Mathie and Clausen, 2015, Eurocam, 2015).

However, when only high quality Randomised Controlled Trials (RCTs) are selected, homeopathy scores significantly higher than placebo (Mathie, 2016, Passet et al, 2016). A more recent report by Weiermayer, Frass, Peinbauer and Ellinger (2020) concludes that there is sufficient positive evidence in the role of homeopathy in reducing the use of antibiotics in livestock to recommend that further studies are undertaken.

Hektoen (2004, 2005) discusses homeopathy in the view of academic veterinary medicine and states that "The use of highly diluted remedies cannot be reconciled with the scientific theories on which the current understanding of disease and its treatment is based, and clinical research in the field is considered to be neither extensive enough nor of a high enough standard to determine whether homeopathic treatments are clinically effective."

In a study from 2006, Kijlstar and Eijck conclude that "More knowledge is needed on the effects of alternative treatments in organic live-stock production. As long as alternative treatments have not formally been proven to be effective, conventional treatments should be preferred. Studies are needed on the welfare aspects of disease and insufficient or postponed treatment in organic animal production systems."

In a recent survey, Keller et al (2019), asked: how target-orientated is the use of homeopathy in dairy farming? Their questionnaire was developed by scientists and veterinarians experienced in homeopathy. In this questionnaire-based face to face interview study with farmers in France, Germany and Spain, spending 120-240 minutes on each of the 64 dairy farms (49 organic and 15 conventional), they find that farmer's knowledge, experience and use of homeopathy varies a lot. The study shows that many farmers lack basic training in homeopathy and have little knowledge of homeopathic principles, and that most pharmacists and non-homeopathic practitioners have little or no experience or knowledge of farm animal diseases and are even less well-informed on the legislation covering animal welfare, animal health and public health regulations in livestock production.

The authors conclude that "there is a need to verify the effectiveness of homeopathic treatments in farm practices based on a *lege artis* (law of the art) treatment procedure and homeopathic principles which can be achieved by the regular monitoring of treatment outcomes and the prevailing rate of the disease at herd level." They also claim that "there is a potential risk to food safety due to the use of non-veterinary drugs without veterinary prescription and the use of other prohibited substances."

Homeopathic nosodes

Isaac Golden is probably the most experienced practitioner, teacher and author in the use of homeopathic nosodes. His book *Homeoprophylaxis* (2015) describes how to use nosodes as an alternative to vaccinations in humans. In his response to Teixeira (2015) he provides evidence for the effectiveness of nosodes. Golden quotes large studies which have been performed and rejected by the conventional medical community, and explains how nosodes have been used through 200 years' history to prevent infectious disease, both bacterial and viral.

Camerlink, Bakker, Ellinger and Lantinga (2010) performed a triple blinded, randomised, placebo controlled study on diarrhoea in newborn piglets, comparing a highly diluted nosode: E Coli C30 to placebo. The nosode was given to the sows pre-birth. This resulted in less severe diarrhoea in the homeopathically treated litters, there was less transmission and duration appeared shorter. The statistically significant positive results from this study suggest that E Coli C30 is an attractive alternative to prevent E Coli diarrhoea and that homeopathic treatment in livestock may help the human population by protecting from the pharmacological residues in animal products.

Nayak and Varanasi (2020) offer a critical review of studies on homeopathic nosodes. They claim nosodes are a neglected approach for epidemics, and that the use of nosodes as isopathy is somewhat acceptable in the mainstream medicine due to its similarity to vaccination. They further discuss the method of preparation and safety issues. Recommendations are made regarding refining the method of preparation and to develop a harmonised way of preparing the nosodes. They conclude that nosodes prepared as per the homeopathic principles have potential to be used as prophylactics in epidemics, but only if there is sufficient experimental evidence of its effectiveness and safety.

Discussion and summary of the literature review

The definition of evidence-based veterinary medicine (EVM) used by the Centre for Evidence-based Veterinary Medicine at the University of Nottingham is:

"Evidence-based veterinary medicine is the use of best relevant evidence in conjunction with clinical expertise to make the best possible decision about a veterinary patient.

The circumstances of each patient, and the circumstances and values of the owner/carer, must also be considered when making an evidence-based decision."

A general criticism of CAM research is that conventional research methods may not be adequate for the way CAM is practiced, and also that the quality of studies varies (Chalmers, 1999; Clausen, Albrecht and Mathie, 2013; Hektoen, 2004, 2005; Kaplan, 2011; Mathie and Clausen, 2014). Still, when only high quality studies are selected, the results speak in favour of homeopathy, herbal medicine and other CAMs.

Paradigm is important. Imagine a common conventional medicine such as a pain killer being studied for its systemic effects, including how it affects stomach lining and intestines, heart rate and blood pressure, liver and kidneys, immediately and over time. If we changed from understanding medicinal products for their effects of single symptoms to always include their systemic reactions, also called side effects (but they are real effects), conventional medicines might be less attractive for non-life-threatening ailments unless we simultaneously use CAMs and dietary interventions to reduce potential side effects.

Not infrequently in medical history, experience-based knowledge precedes what is later proven experimentally. In some cases, experimental evidence is not even needed. Oftentimes common sense says it all; who would even dream about doing a blinded, randomised, placebo-controlled trial on whether parachutes save lives? It is our belief that the results of investigating the farmer's voice; i.e. what farmers use with success over time to improve livestock and farm health and health management, may be useful for other farmers, teachers and vets in identifying areas worthy of further study and in developing and improving education, research and policies.

Appendix 2

Reading List



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Appendix 3

The Survey



Scope of Study

Whole Health Agriculture (WHAg) is surveying farmers who incorporate non-conventional or alternative approaches into their livestock health management, in order to identify those practices, methods and products which:

- are used to successfully manage livestock health
- have the potential to reduce or refine the usage of antibiotics and other synthetic/toxic chemical interventions
- are worthy of further research, development and/or knowledge transfer to farmers and related professions

As a thank you, you will be entered into a monthly prize draw to win one of three Helios homeopathic remedy kits.

From initial indications, the survey should take around half an hour so it's a perfect excuse to sit down with a cup of tea, but you do NOT have to complete it in one sitting - you can dip in and out of it as many times as you like. A few of the questions will need you to think about them for a bit longer, but your responses are really important to make your voice heard. You'll need to finish answering each question before you can progress to the next.

Please note; if you are really pushed for time but still want to help us gather this important information, the most critical questions are:

Questions 1-7, 10, 12, 13, 15 and 16 .

We are not ashamed to beg you to do all of it if you can! However, you must reply to ALL of the questions and complete Q21 to enter the prize draw. *Where you have nothing to say to a Q, just put n/a to move on.*

How will the results be used?

WHAg will analyse the results and produce a report for publication on our website, in articles, and in presentations. It will also form the basis for wider research involving other countries.

Your participation will guarantee access to the completed report.

Confidentiality & Privacy

Your anonymity and confidentiality are guaranteed. By participating you are agreeing to your data being stored securely in accordance with GDPR (General Data Protection Regs). All responses will be used in aggregate form in order to understand practices, trends and attitudes. NB Any quotations will be non-attributable.

Qualifying Question

1. Do you use, or have you ever used, any non-conventional, complementary or alternative methods, medicines or products (*CAMs) to prevent illness, maintain health, or as treatment for livestock in your care?

*By CAMs we mean any non-pharmaceutical or 'natural' approach, eg:

- herbal leys, herbal remedies or medicinal plants
- fermented foods incl. apple cider vinegar, kefir etc
- acupuncture
- pre/probiotics
- homeopathic remedies
- Rescue Remedy® or other essences
- neem or other essential oils/products including Uddermint®
- physiotherapy/massage/chiropractic
- radionics or 'energy/distant' healing
- observation based methods eg Obsalim®, Cow Signals®

(The list above is not conclusive. If you have used a method, treatment or product that is not mentioned here, your knowledge and experience is important to us)

If YES, please proceed to the next question.

If NO, thank you for your interest but unfortunately you do not qualify for participation in this survey.

YES

NO

Main Survey

Thank you for your participation - we know how busy you are and we really value your input. This survey was designed by farmers for farmers so we hope you will find it interesting and get value from it.

There are 20 questions which take between 15 and 30 minutes, so - PLEASE - make sure you have enough time (grab a coffee, open the wine, pour a beer!) If you get interrupted you can come back to your answers later! THANK YOU!

2. Firstly, please tick which **best** describes your role (tick one only):

- Owner/Business partner/Manager
- Family member/spouse/life partner
- Employee/Freelancer/contractor
- If Other, please specify

3. Please give your email address, plus the COUNTY and POSTCODE, (if known), of the farm/s or smallholding/s where you are responsible for livestock (if outside the UK, please give state, area or region as applicable).

Your email address	<input type="text"/>
Farm 1	<input type="text"/>
Farm 2	<input type="text"/>
Farm 3	<input type="text"/>

4. And for each of these farms or smallholdings, please indicate which type of system is used:

	Farm 1	Farm 2	Farm 3
Conventional	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Certified Organic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Certified Biodynamic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Uncertified Organic/Biodynamic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If you have ticked **other** - please specify

About Your Farm/s

You do not need to go through your records for exact figures here, your best guess will do!

5. Please enter your usual/average yearly numbers for each livestock enterprise - if you are responsible for more than one farm please combine total numbers for each species:

Dairy Cows	<input type="text"/>
Beef	<input type="text"/>
Sheep	<input type="text"/>
Goats	<input type="text"/>
Poultry Meat	<input type="text"/>
Poultry Layers	<input type="text"/>
Pigs	<input type="text"/>
Other: Please specify	<input type="text"/>
Other: Please specify	<input type="text"/>

6. Which of the following **best** applies to your livestock or the livestock for which you are responsible? **Please tick ONE option.**

- Reared commercially for national supply chain
- Reared commercially for local supply
- Reared partly commercially, partly for home consumption
- Reared mainly or exclusively for home/family consumption
- If 'Other', please specify:

About Your Practices and Methods

This is one of our KEY questions so please give it some thought - thank you.

7. We'd like you to start thinking now about **specific** CAMs that you have used/use for livestock health. **Please tick all that you have used/use.** *You must tick at least one option.*

- Herbs and medicinal plants, herbal leys, herbal wormers, tinctures
- Homeopathic remedies including nosodes
- Rescue Remedy® or similar essences eg Bach Flowers, Bush Flowers, Gem Essences etc
- Essential/Plant Oils (eg Tea Tree, Neem) and derived products, eg Uddermint®
- Pre/Probiotics
- Fermented foods: eg grains, apple cider vinegar, kefir, LAB, etc
- Acupuncture/Acupressure/Shiatsu
- Bodywork: Physiotherapy/Massage/Chiropractic/Osteopathy
- OBSALIM® (diagnostic and feed adjustment method based on observation)
- Cow Signals® (Behaviour analysis to prevent illness and disease)
- Energetic Healing incl. Radionics, Reiki etc
- Other - please specify below
- For OTHER please give details (you may mention more than one method/product)

8. How did you gain your knowledge/learn about the CAMs that you have just mentioned? (*Please tick all that apply*)

- Peers/colleagues/friends and family
- Courses and workshops
- Veterinary professionals
- Farming professionals/industry bodies etc
- Internet
- Books and magazines
- Other (please specify as many as you need)

9. If you selected '**Courses and Workshops**' at the previous question; please specify the the course/workshop and the CAMs taught.

YOU CAN SKIP THIS QUESTION IF IT'S NOT APPLICABLE.

Name of course & CAM	<input type="text"/>
Name of course & CAM	<input type="text"/>
Name of course & CAM	<input type="text"/>
Name of course & CAM	<input type="text"/>

Your Usage

This a **KEY** question so **PLEASE** give it your best shot. (You are over halfway through - please keep going!)

10. Below are listed several approaches which farmers may take when incorporating CAMs into their livestock health management. **For each approach that applies to you please detail WHAT CAMs you use and HOW you apply them as comprehensively as possible.** *This is a really important question as it will help us build up a picture of what really works for farmers.*

Some examples:

- **Preventative & Maintenance:** You might use Homeopathic Nosodes aimed at controlling specific diseases, Herbal products to prevent worms, use OBSALIM® to optimise your feeding
- **Routine:** You might aim to prevent stress by using Aconite or Rescue Remedy before vet visits, or give Ignatia at weaning
- **Acutes:** You might use Colloidal Silver on wounds, give Arnica and Hypericum for de-horning, use Uddermint® cream for mastitis etc
- **Chronic:** You might use homeopathy for fertility, herbs for mobility etc

NB The text boxes are irritatingly small but they will expand to fit your answers. You might want to open a separate Word or Notepad document then copy and paste your answers when you are happy with them.

Preventative or Maintenance:

eg to prevent disease (eg TB, Orf, parasites/flies) or maintain optimum health

Routine stresses or events:

eg weaning, de-horning, tail ringing, vet visits, foot trimming, etc

Acute/first aid:

eg injuries, infections, emergencies, birthing problems, wounds etc

Chronic:

ie recurrent or ongoing conditions such as 'bad joints/feet', chronic mastitis, infertility, allergies/COPD, etc

Other: SPECIFY

Other: SPECIFY

If you have nothing to add here please enter 'N/A' to go to the next question.

11. If you have any additional information about your use of CAMs for livestock health please enter it here.
The text box will expand to fit your answers.

Please tick all that apply here - thank you

12. How has learning and using CAMs influenced your farming practice?

- | | |
|--|---|
| <input type="checkbox"/> Better observation | <input type="checkbox"/> Improved hygiene |
| <input type="checkbox"/> Better attention to maintaining causes | <input type="checkbox"/> Conversion to organic or biodynamic |
| <input type="checkbox"/> Early intervention | <input type="checkbox"/> Greater attention to my animals' wellbeing |
| <input type="checkbox"/> More holistic approach to health management | <input type="checkbox"/> No change |
| <input type="checkbox"/> Better record keeping | |
| <input type="checkbox"/> Other (please specify) | |

This question was designed by a conventional dairy farmer who was delighted by the results of CAM on his herd. Please tick all that apply to you.

13. Which of the following statements do you **agree** with? *Please tick all that apply.*

My use of CAMs has contributed to/resulted in

- | | |
|---|--|
| <input type="checkbox"/> Improved general health and wellbeing of livestock | <input type="checkbox"/> Reduced frequency or severity of mastitis |
| <input type="checkbox"/> Lower disease frequency and/or reduced severity of disease | <input type="checkbox"/> Fewer incidences of milk withdrawal |
| <input type="checkbox"/> Higher fertility rate | <input type="checkbox"/> Fewer vet visits |
| <input type="checkbox"/> Lower cull rate/re-stocking rate | <input type="checkbox"/> Lower vet and medicine costs |
| <input type="checkbox"/> Higher live birth rate | <input type="checkbox"/> Zero, low or reduced antibiotic usage |
| <input type="checkbox"/> Reduced frequency or severity of lameness | <input type="checkbox"/> Zero, low or reduced wormer usage |
| <input type="checkbox"/> Lower cell counts | <input type="checkbox"/> Increased financial profitability of farm |
| <input type="checkbox"/> Other: you may also use this space to expand on your answers or to comment generally | |

Your Usage of Antibiotics

This is a critical question so please hang in there - you are 3/4 finished! Thank you!

14. Coming specifically to ANTIBIOTICS, have you ever been requested or compelled to reduce antibiotics usage for livestock? (eg vets, customers, abattoirs, supermarkets, industry bodies etc). *Please give details of **who** made the request and the **reason** for the request.*

15. Still thinking about **antibiotics**, please tick as many of the following statements that you agree with. **You may multi-select.** *If you do not agree with any statement, please TICK OTHER and give details.*

- Using CAMs has helped or enabled me to **reduce** antibiotics
- Using CAMs has helped or enabled me to maintain or achieve **low** usage of antibiotics
- Using CAMs has helped or enabled me to maintain or achieve **zero** antibiotic status or usage
- Other

Other - please explain

This question is REALLY IMPORTANT so please bear with us. (NB There are 6 CAM's listed below + OTHER - if you are on a tablet and cannot see all columns, use the slider)

16. Below is a list of diseases, conditions or infections. Please tick all that you have **successfully** resolved with CAMs, ie where the animal has been returned to health **without** antibiotics. **TICK all that apply - you may select more than one CAM for each infection.**

	Herbs/medicinal plants	Homeopathy (inc. nosodes)	Obsalim	Oils/Neem/Uddermint	Pre/Probiotics	Fermented Foods/vinegar	Other
Mastitis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Metritis/infected uterus/retained placenta	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Respiratory/lung infection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Diarrhoea/Scours/gastric infection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Foot/digital/claw infection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eye infection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Infected wound/skin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Abscess/Fistula/Ulcer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Other (please specify infection AND treatment)

If you are flagging at this point, please enter N/A but we would love to hear your experiences!

17. For which diseases, infections or conditions have you experienced **the most impressive results** in terms of using CAMS to avoid or reduce antibiotics?

If you are losing the will to live please type 'N/A' and go to the next question - you are almost done!

18. Please share any other **standout successes** or '**eureka/lightbulb**' moments you may have experienced during your use of CAMs . *(This can be to do with anything - ie not just restricted to farming)*.

One more question to go!

19. What has been your experience of the VETERINARY profession in support of your use of CAMs for your health management?

FINAL QUESTION - this is designed to encourage or help other farmers. PS you will need to keep going to the end and click DONE to enter the PRIZE DRAW!

20. Finally, what advice would you give to other farmers with regard to using CAMs for livestock health management?

FINAL DETAILS

You have finished all of the questions - **THANK YOU** for sticking with us. Just a few details needed. Please note that you must continue to the end of the survey and click 'DONE' for your entry into the monthly prize draw to be counted.

21. A sincere thank you - we appreciate you taking time out of your busy farming schedule to participate in this survey. We hope the results will enable us to evaluate the potential of CAMs to clean up the food chain and to refine or reduce the use of antibiotics and other 'environmentally unfriendly' interventions in livestock health.

Please enter your details to guarantee your copy of the final report AND confirm your entry into our monthly prize draw to win one of three Helios homeopathic remedy kits.

Name	<input type="text"/>
Postcode	<input type="text"/>
Country	<input type="text"/>
Email Address	<input type="text"/>

22. If you have enjoyed this survey and would like to take part in a more in-depth interview/case study, please indicate YES/ NO to being contacted by email. (If YES, please ensure you have confirmed your email address at Q21)

- Yes
- No

23. The team at [Whole Health Ag.](#) hopes that you have enjoyed this survey and can see the value in what we are trying to achieve. We would love to stay in touch about our future developments and activities. However, if you do not wish to be contacted by us again, please check the box below to opt out of all future emails. You will still be **gifted a copy of the final report** as a thank you for your participation. To opt out entirely, please email secretary@wholehealthag.org.

OPT OUT

DOWNLOADED VERSIONS:

If you have completed this survey by digitally editing a downloaded version, please email your completed survey to:
karen@wholehealthag.org.

If you have completed a paper copy of this survey, please post to :

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For further information, to sign up for our newsletters and access to memberships and courses, or to support our work, please visit our website

For further training and support services, visit our Learning Centre - for progressive farm education





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