DigiCow

Behaviour Change Insights from Dairy Farmers



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Overview

DigiCow is a digital services provider that offers Kenyan dairy farmers training on cattle management and related services. They deliver services through two channels: directly to farmers through a DigiCow smartphone application ('direct user') or through group training sessions facilitated by extension workers ('facilitated user').

DigiCow aims to impact cattle productivity and returns by improving farmers' approach to:

- **Cattle feeding**
- **Cattle breeding**
- **Cattle health-management**

This report provides insight into the impact of DigiCow's services on dairy farmers in Kenya, and highlights differences between the two service delivery channels. The insights are based on phone interviews with 114 farmers who had received DigiCow training roughly 5 months prior to being interviewed. 49% of them were direct users of the DigiCow app, while extension workers facilitated access to information for 51%. These interviews were conducted by 60 Decibels trained researchers.

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Sample Characteristics	
Country	**Kenya**
Interviews Completed	**114**
Response Rate	**60%**
Languages	**Swahili**
Average Survey Length	**22 mins**



> "Revenue increased a lot because milk production increased. This is due to introduction of protein and carbs in the cows meals which boost milk production. I learnt from DigiCow."
>
> -Male, 29

Methodology: About the QuIP

The Qualitative Impact Protocol (QuIP) is an impact evaluation approach established by the Centre for Development Studies at University of Bath and licensed by Bath Social & Development Research Ltd.

QuIPs gather evidence of an organization's impact through narrative causal statements, meaning they do not require a comparison group to establish causality. Instead, respondents are asked to talk about a change over a specific period and to share both (1) the main driver of that change, and (2) to whom/what they attribute that change (can be from multiple sources).

Double blinded interviews are at the core of the QuIP. In this project, neither the farmer nor the enumerator knew that that the organisation being evaluated was DigiCow.

In practice, interviews were conducted in a semi-structured fashion without any mention of DigiCow. Dairy farmers were asked to reflect on the last 5 months and describe changes (if any) in their:

- Cattle management behaviours or practices: feeding, breeding, and health management, and/or
- Cattle outcomes: milk production and revenue from milk.

Those who reported a change were asked to explain all root causes of these changes. The 60 Decibels team coded farmers' qualitative responses to identify the proportion that identified DigiCow as a root cause for the change. While some farmers mentioned DigiCow by name, there were others who described the training provided by DigiCow but did not recall the name of the organization. We refer to the former as 'direct attribution' and the latter as 'indirect attribution'.

The last section in the survey was aimed at providing market intelligence to DigiCow and was not related to the QuIP. It included a series of quantitative questions about farmers' usage of other digital agricultural services and their comfort with digital tools.

QuIP Survey Domains and Guiding Questions

Behaviour 1: Feeding Practices	Thinking about your dairy farm in the last 4-5 months, since the Easter holiday, has your method for cattle feeding changed?
Behaviour 2: Breeding Practices	Thinking about your dairy farm in the last 4-5 months, since the Easter holiday, has your method for cattle breeding changed?
Behaviour 3: Health-Related Practices	Thinking about your dairy farm in the last 4-5 months, since the Easter holiday has the way that you treat and monitor your cattle's health changed?
Outcome 1: Production	Thinking about your dairy farm in the last 4-5 months, since the Easter holiday, have there been changes in your production?
Outcome 2: Revenue	Thinking about your dairy farm in the last 4-5 months, since the Easter holiday, have there been changes in your revenue?

Methodology: Causality

Analysing Causality

We analysed the causal impact of DigiCow on dairy farmers in Kenya. Using a 5-point scale, we measured DigiCow's impact on 5 key behaviour and outcome domains: Feeding, Breeding, Health, Production, and Revenue. The lowest score, **1**, corresponds to a **Negligible Causal Link** between the improvement and DigiCow while the highest, 5, refers to DigiCow being the **Sole Driver** of change. The causality rating for each domain is mentioned in each section of the report.

The causality rating is calculated using the **average of two indicators**:

1. % of farmers mentioning an improvement in the given domain
2. % of farmers 'directly' attributing the improvement to DigiCow, that is, mentioning DigiCow by name

Example Causality Calculation

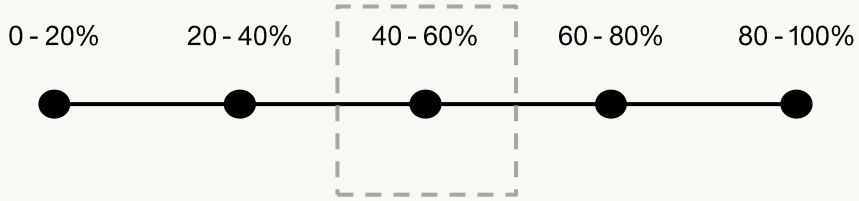
Let's use the Cattle Feeding domain as an example (see page 12 for more details). This domain assesses DigiCow's contribution to dairy farmers improvement of cattle feeding practices.

1. 57% of farmers improved their feeding practices in the last 5 months = **3 rating**
2. 35% of the above farmers directly attribute the changes to DigiCow = **2 rating**

Causality Rating: The average of the proportions (57% and 35%) is 46% implying a rating of 3 and **suggesting a medium causal relationship between DigiCow and improved farming behaviours.**

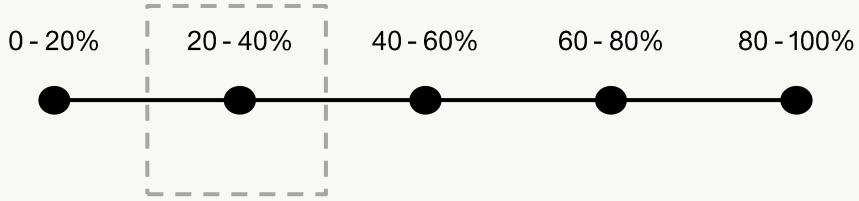
Impact Rating:

Given based on the proportion of farmers reporting the behavior change targeted by the program



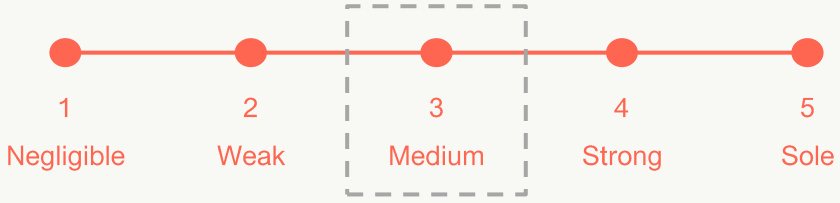
Attribution Rating:

Given based on the proportion of farmers reporting that the intended behavior change was brought about by the program



Causality Rating

Given as an average of the impact and attribution proportions



Key Insights

Training Effectiveness

DigiCow's training is effective in changing farmer feeding practices and cattle health management.

57% of farmers mentioned positive changes in their feeding practices after receiving DigiCow's training. A third of them said that the change was due to 'DigiCow' (direct attribution). Another 26% described the company's training although they did not mention DigiCow by name (indirect attribution).

In addition, farmers responses indicated that DigiCow's training taught them the benefit of these positive practices, as they were able to clearly explain *why* certain behaviours led to positive outcomes.

66% spoke of positive changes in their cattle health management approach. 21% attributed the change directly to DigiCow, while 12% attributed it indirectly to the company.

The training's effectiveness is limited in influencing cattle breeding practices.

Only 16% of farmers spoke of changing cattle breeding practices and a third of them attributed this change to DigiCow. This is likely because most farmers (80% of the remaining farmers) were already using artificial insemination.

Training Impact

Applying DigiCow-recommended feeding practices is improving milk production.

50% of farmers reported improved milk production since the training. A third of them attributed the change directly to DigiCow and another 14% mentioned the DigiCow intervention indirectly as a root cause. Farmers attributed increased productivity to two practices most frequently: using mineral salts and introducing high-quality dairy meals.

Almost everyone who mentioned increased milk production also spoke about increased revenue.

Farmers mentioned the importance of the increased production and revenue in the context of a prolonged drought and unfavorable market conditions in Kenya.

Barriers to Adoption of Practices

Several farmers reported an inability to adopt the practices recommended by DigiCow because doing so was too expensive. Farmers mentioned the high price of feed, supplements, and artificial insemination. All adverse changes in cattle management

behaviours were attributed to either climate factors, like a longer dry season, or market factors, like low selling prices for milk, and shortage or high cost of inputs.

Given that financial constraints are a barrier for many farmers to improve their farming practices, there is an opportunity for DigiCow to enhance their offering by linking their training and services to providers that offer financial support or low-cost inputs.

See more on Page 10, 16, 27.

Training Dissemination Channel: Direct vs Facilitated

DigiCow's app-based training is nearly as effective as in-person training facilitated by extension workers. Across all domains, only a slightly higher proportion of those receiving facilitated training report improvements in behaviour and outcomes compared to farmers who trained directly on the DigiCow app. The difference was the highest for cattle health management practices. Cattle feeding practices: 52% of direct vs 63% of indirect users report positive changes in behaviour; cattle health-related practices: 55% direct vs 77% indirect report positive changes in behaviour; production: 47% direct vs 54% indirect reported positive changes in behaviours.

Interestingly, **a higher proportion of app-users directly attributed positive changes to DigiCow.** This is expected as respondents who are using the DigiCow app, to follow step-by-step guidance, have more frequent exposure to the DigiCow branding.

See more on Page 13, 24, 31.

Key Insights

Trust and Comfort with Digital Tools

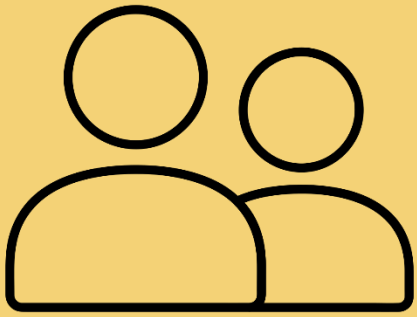
Farmers reported increased comfort and trust with digital tools after engaging with DigiCow.

DigiCow is having a positive impact on farmer's comfort and trust with digital tools. Almost all the farmers we spoke to said they use a mobile phone to support their farming business. The most common activity farmers use a mobile phone for is gathering information and advice on dairy farming practices.

Ease of use and improved skills and knowledge are driving farmers' increased comfort with digital tools. 1 in 3 farmers report that DigiCow is the digital service they both trust and use the most to support their farming activities, and 72% of farmers say they feel encouraged to start using other digital tools.

Only 11% of farmers have mentioned that their record keeping has improved after using digital services. Given that digital record keeping is one of DigiCow's core offerings, this might be an area for improvement where DigiCow can incentivize more farmers to record data or can make it a focus point as part of their training.

See more on Page 34-40.



Farmer Profile

This section highlights demographics and farm characteristics of DigiCow's farmer base. Additionally, it outlines if DigiCow is reaching a previously underserved population.

The key indicators in this section are:

- **Inclusivity Ratio:** is DigiCow reaching less well-off farmers? How representative is their farmer base of the national population of Kenya?
- **Herd Profile:** How many cows are DigiCow farmers rearing, and what breeds?
- **Labour Mix:** Are DigiCow's farmers hiring labour for their dairy farming, or relying on household labour?

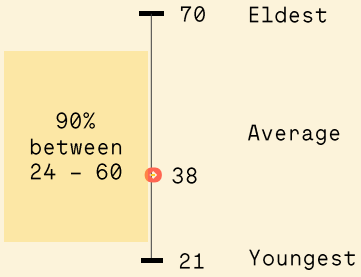
The typical DigiCow farmer we spoke to is a 38-year-old living in a rural district of Kenya. We spoke to fairly equal proportions of male and female farmers.

Demographics

Gender Breakdown	
Male	53%
Female	47%

Top 5 Locations	
Elgeyo Marakwet	17%
Nandi	15%
Uasin Gishu	14%
Nakuru	12%
Kiambu	11%

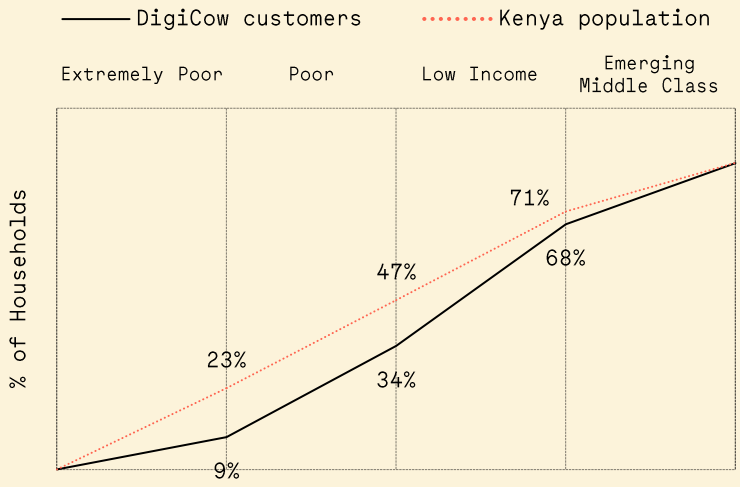
Age Distribution



34% of DigiCow's farmers live under $3.20 per day, compared to 47% nationally.

Farmers' Income Distribution Relative to Kenya Average

% living below $3.20 per person per day (2011 PPP) (n = 114)



Inclusivity Ratio

Degree to which DigiCow is reaching low-income clients in Kenya (n = 114)

0.69

1 = parity with population;
> 1 = over-serving;
< 1 = under-serving.
See Appendix for calculation.

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BOTTOM 20% - 60dB Benchmark

On average, DigiCow farmers rear 5 cows, 3 of which produce milk. Three-quarters of farmers rear Friesian cows.

Cattle characteristics

Number of Cows Reared	
Min	1
Max	20
Average	5

Top Breeds	
Friesian	75%
Ayrshire	26%
Jersey	8%

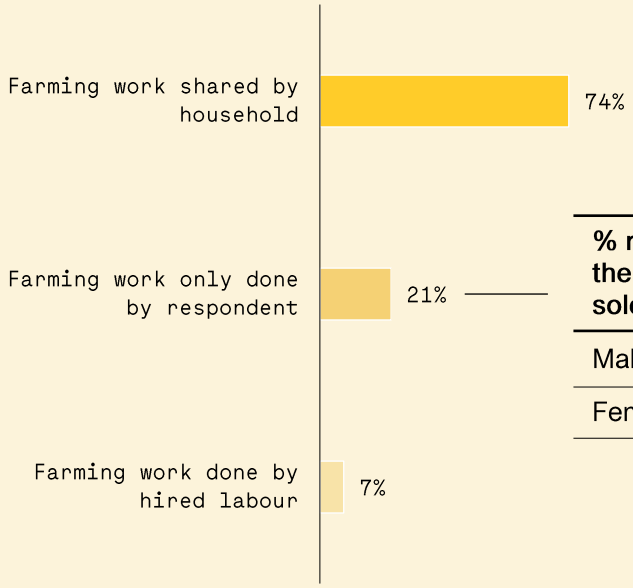
Average Cow Gender Breakdown	
Female	4
Male	1

3
on average produce milk

74% of DigiCow farmers use household labour for dairy farming, and a much smaller proportion use hired labour.

Distribution of work

Q: How do you divide work related to your dairy farm? I(n = 114). Open-ended, coded by 60 Decibels.



% reporting themselves as the sole labourer	
Male	18%
Female	24%



Behaviour Change 1: Feeding

In order to understand the causal impact DigiCow is having on dairy farmers' feeding practices, we asked farmers whether they have changed the way they feed their cattle in the last 5 months and why.

This section shows both the degree to which DigiCow is impacting dairy farmers cattle feeding behaviours, and the exact behaviour changes farmers are implementing as a result of DigiCow's services.

The key indicators in this section are:

- **Impact Rating:** What proportion of farmers have made positive changes to their feeding practices?
- **Attribution Rating:** What proportion of farmers attribute these positive changes to DigiCow?
- **Causality Rating:** How strong is the causal linkage between DigiCow and improved feeding behaviours?
- **Facilitated and Direct Training:** Is there a difference in outcomes between farmers receiving facilitated training and those directly trained via the app?

57%

made **positive** changes to feeding practices

35%

directly attribute these positive changes to DigiCow

Causality Rating: Medium

Target Behaviour

DigiCow's digital platform and facilitators train farmers in cattle feeding practices that can increase production. These include the use of mineral salts and dairy meals for cattle, better pasture and fodder management, and how and when to feed newborn calves.

What We Asked

We asked farmers what changes, if any, have they made to their feeding practices in the last 5 months. The reported changes were compared to intended behaviour changes mentioned in DigiCow's training content to identify overlap.

What We Heard

57% of farmers changed cattle feeding as instructed in DigiCow's training. We call these 'positive changes.' When asked why they made these changes, 35% directly attributed the positive changes to DigiCow. This suggests a **medium causal relationship** between DigiCow and farmers' improved feeding practices.

In addition, 26% of farmers indirectly attributed improved feeding behaviours to DigiCow. That is, they described the format or content of DigiCow's training but did not mention it by name. Given these changes happened following training from DigiCow, we hypothesize they are an outcome of DigiCow's offering.

Interestingly, 31% of farmers reported 'negative changes' to their feeding practices. That is, they were unable to follow one or more of the good rearing practices e.g., not feeding supplements to cattle due to high market price. All the negative changes were attributed to either climate factors (for example, a longer dry season or a shortage of inputs) or poor market conditions (for example, low market prices for milk or expensive inputs). Women were slightly more likely to report these than men.

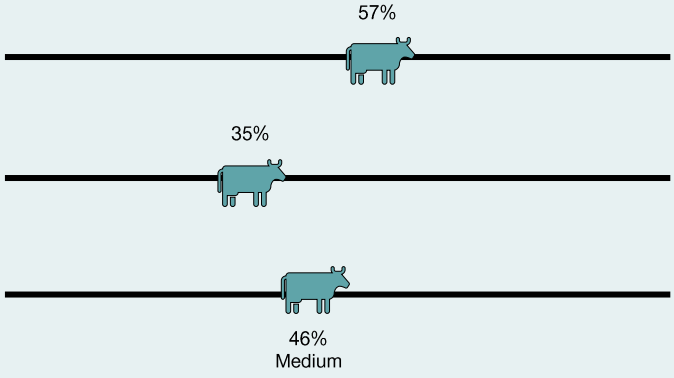
We also heard a small number of respondents (17%) mention that their feeding practices did not change in the last 5 months. Most often, this was a personal choice because they felt they were already implementing positive feeding practices.

Causality Rating

Impact Rating: % reporting uptake of intended behaviour

Attribution Rating: % attributing behaviour change to DigiCow

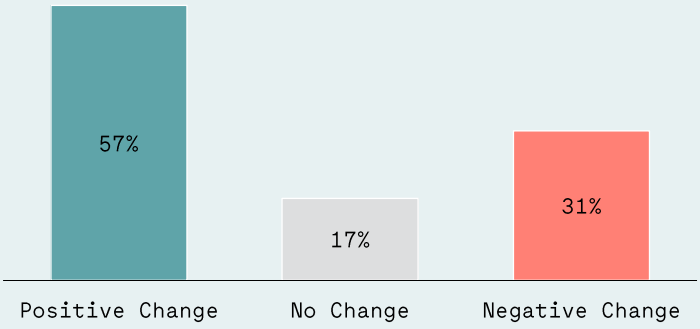
Causality Rating: average of the two percentages



57% of the DigiCow farmers we spoke to report a positive change in their cattle feeding practices in the last 5 months.

Change in Feeding Practices

Q: Thinking about your dairy farm in the last 4-5 months, since the Easter holiday, has your method for cattle feeding changed? (n=114). Open-ended, coded by 60 Decibels.

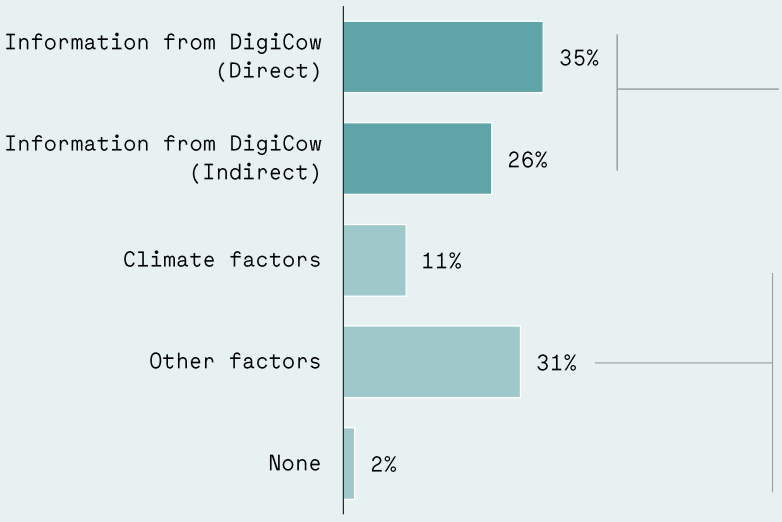


> "With the knowledge gained from the trainings, I have been able to introduce salt lick supplement which has made our cattle produce more milk. - Male, 51

Of the farmers reporting positive changes to their feeding practices, over 60% attribute these changes to DigiCow's training, either directly or indirectly.

Reason for Change in Feeding Practices

Q: Why have you changed/not changed the way you feed your cattle in the last 5 months? (n = 65 who reported Positive Change). Open-ended, coded by 60 Decibels.



61%

Attribute positive changes to DigiCow

Other factors include:

1. Information from a friend or family member
2. Information through another company or cooperative
3. Agricultural school or studies

The three most common improvements in feeding practices are the use of mineral salts, the use of high-quality dairy meals, and better storage for fodder.

Most Common Positive Change to Feeding Practices

Q: Please explain these changes to your feeding practice (n = 65 reporting positive changes). Open-ended, coded by 60 Decibels.

63%

talk about introducing dairy meals and other supplements
(41 respondents / 6% of all respondents)

51%

attribute this change to DigiCow
(21 out of 41 respondents)

“When I got trained, I started introducing different methods of using dairy meals and other supplements to my cow which I never used to do.

- Male, 26

46%

mention using mineral salts
(30 respondents / 26% of all respondents)

83%

attribute this change to DigiCow
(25 out of 30 respondents)

“Since I started attending dairy training, I have been able to introduce salt lick supplement which has made our cattle produce more milk.

- Male, 51

37%

mention making silage or other methods of fodder management
(24 respondents / 21% of all respondents)

54%

attribute this change to DigiCow
(13 out of 24 respondents)

“Due to training from DigiCow, I was able to learn how to avoid wastage. I understood the importance of storage, and this enabled me to remain with enough animal feeds throughout the seasons.

- Female



Difference in Impact: Direct vs Facilitated Use

A higher proportion of farmers who access DigiCow's information through an extension agent incorporated the recommended cattle feeding practices compared to those who used DigiCow App directly (63% vs. 52%). This suggests that in-person trainings facilitated by extension workers are slightly more effective in changing farmers' feeding behaviours.

Additionally, in-person training was more effective for practices related to dry season and fodder management, like making silage or to storing fodder, while app-based training was more likely to encourage farmers to use dairy meals and other supplements in their cattle's diet.

Only 29% of farmers receiving facilitated training attributed a positive change to DigiCow, compared to 43% of farmers receiving direct training. This is likely because respondents who are using the DigiCow app to follow step-by-step guidance have more frequent exposure to the DigiCow branding.

Facilitated Use

63% reported improvements in feeding practices in the last 5 months

(35 of 56 respondents)

29% directly attribute this change to DigiCow

(10 of 35 respondents)

Direct Use

52% reported improvements in feeding practices in the last 5 months

(30 of 58 respondents)

43% directly attribute this change to DigiCow

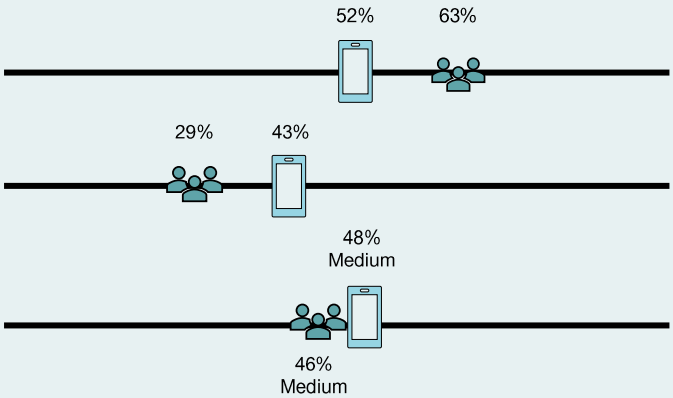
(13 of 30 respondents)

Causality Rating

Impact Rating: % reporting uptake of intended behaviour

Attribution Rating: % attributing behaviour change to DigiCow

Causality Rating: average of the two percentages

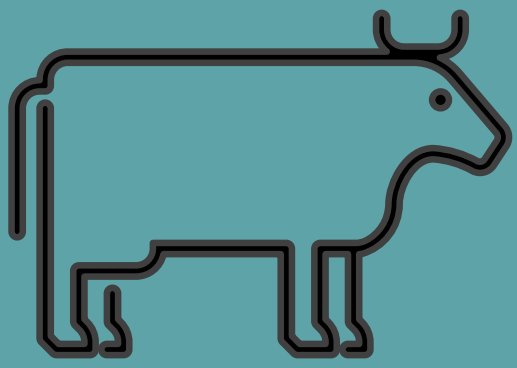




“

I added salt to their feeds and bought a mineral supplement called Afya Bora Maziwa. I learnt this from the App I downloaded called DigiCow which I found on my own. Before Easter, I had not started feeding them with salt because I never knew its importance. I noticed my bulls are now very active after adding salt to their meals and this means breeding chances are high.

- Male, 32



Behaviour Change 2: Breeding

In order to understand the causal impact DigiCow is having on dairy farmers' breeding practices, we asked farmers whether they have changed the way they breed their cattle in the last 5 months and why.

This section shows both the degree to which DigiCow is impacting dairy farmers cattle breeding behaviours, and the exact behaviour changes farmers are implementing as a result of DigiCow's services.

The key indicators in this section are:

- **Impact Rating:** What proportion of farmers have made positive changes to their breeding practices?
- **Attribution Rating:** What proportion of farmers attribute these positive changes to DigiCow?
- **Causality Rating:** How strong is the causal linkage between DigiCow and improved breeding behaviours?
- **Facilitated and Direct Training:** Is there a difference in outcomes between farmers receiving facilitated training and those directly trained via the app?

16%

made **positive changes** to breeding practices

28%

directly attribute these positive changes to DigiCow

Causality Rating: Weak

Target Behaviour

DigiCow's digital platform and facilitators train farmers in cattle breeding practices that can increase production. These include the differences between natural and artificial insemination, the best time to serve their cows, and how to detect signs of heat.

What We Asked

We asked farmers what changes, if any, have they made to their breeding practices in the last 5 months. The reported changes were compared to intended behaviour changes mentioned in DigiCow's training content to identify overlap.

What We Heard

16% of farmers changed cattle breeding as instructed in DigiCow's training. We call these 'positive changes.' When asked why they made these changes, 28% directly attributed the positive changes to DigiCow. This suggests a **weak causal relationship** between DigiCow and farmers' improved feeding practices.

Interestingly, 83% of farmers report 'no change' to their breeding practices in the last 5 months. Two out of three of these farmers are already using artificial insemination and have been for a long period of time. On the other hand, a quarter of these farmers are using natural insemination methods because they are both more affordable and they either have their own bull or can use a friends/neighbour's bull for insemination purposes. The largest barrier that farmers expressed for using artificial insemination is cost. Almost half of farmers using natural insemination report that they do so because it is much cheaper.

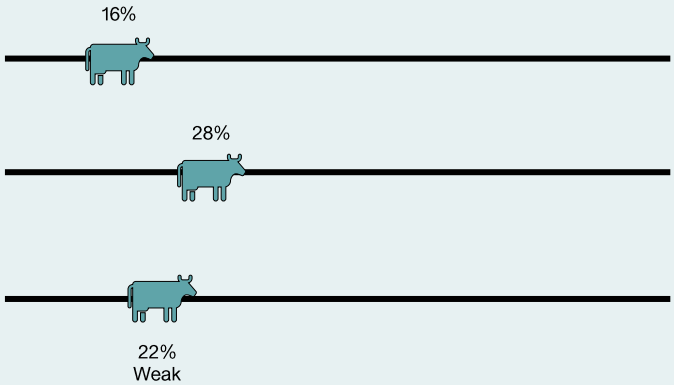
Finally, a small number of farmers (roughly 10%) who have not changed their breeding practices in the last 5 months expressed that they would like to start artificial insemination, if it was more affordable.

Causality Rating

Impact Rating: % reporting uptake of intended behaviour

Attribution Rating: % attributing behaviour change to DigiCow

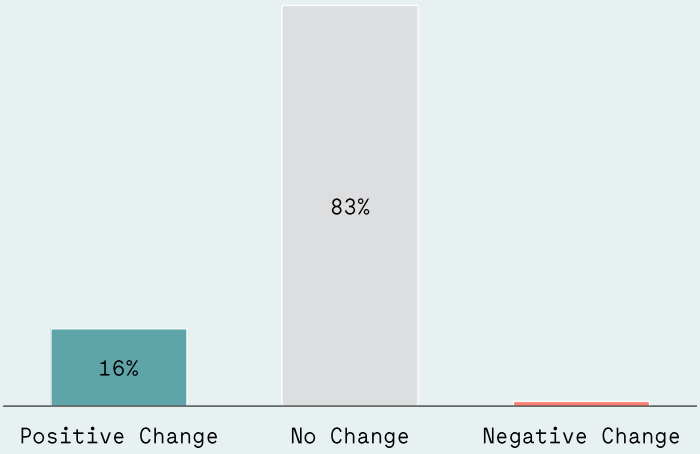
Causality Rating: average of the two percentages



16% of the DigiCow farmers we spoke to report a positive change in their cattle breeding practices in the last 5 months.

Change in Breeding Practices

Q: Thinking about your dairy farm in the last 4-5 months, since the Easter holiday, has your method for cattle breeding changed? If yes, why? (n=114)

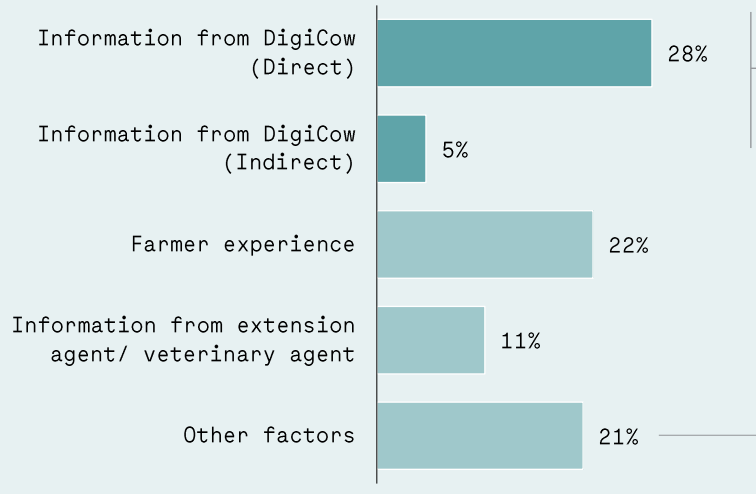


> There has been no change y breeding method because I use my neighbor's bull which is healthy and has never transmitted any infections to my cow.
> – Male, 70

Of the farmers reporting positive changes to their breeding practices, 1 in 3 attribute these changes to DigiCow's training, either directly or indirectly.

Reason for Change in Breeding Practices

Q: Why have you changed/not changed the way you breed your cattle in the last 5 months? (n = 18, who reported Positive Change)



33%

attribute positive changes to DigiCow

Other factors include:

1. Farmer's previous experience
3. Information from extension agent / veterinary agent
4. Agricultural school or studies

The two most common improvements in breeding practices are the use of artificial insemination and closer monitoring of cattle heat.

Most Common Positive Change to Breeding Practices

Q: Please explain these changes to your breeding practice (n = 18 reporting positive changes). Open-ended, coded by 60 Decibels.

78%

talk about artificially inseminating their cows or wanting to use artificial insemination

(14 respondents / 12% of all respondents)

17%

mention closely monitoring cattle heat.

(3 respondents / 3% of all respondents)

21%

attribute this change to DigiCow

(3 out of 14 respondents)

67%

attribute this change to DigiCow

(2 out of 3 respondents)

“

After the training from DigiCow officers, I have shifted to the method called artificial insemination. They advised me on the importance of using this method and the benefit like improving the breeds and also increasing milk production.
-Female, 45

“

DigiCow have always been there to conduct a close follow-up on [the breeding] process. Whenever my cows are on heat, it is just a matter of calling them and they always ensure they provide the right information on the type of breed they are breeding my cows.

- Male, 50





> My cow started producing more milk after calving which changed from 3 litres to 7 litres and now 10 litres at any milking session. The calving was as a result of an information I got from DigiCow on artificial insemination. I did artificial insemination because I had no male cow to mate with my female cows.
>
> – Male, 50



Behaviour Change 3: Health-Related Practices

In order to understand the causal impact DigiCow is having on dairy farmers' health and medical practices, we asked farmers whether they have changed the way they monitor and treat their cattle in the last 5 months and why.

This section shows both the degree to which DigiCow is impacting dairy farmers cattle health and medical practices, along with the exact behaviour changes farmers are implementing as a result of DigiCow's services.

The key indicators in this section are:

- **Impact Rating:** What proportion of farmers have made positive changes to their health and medical practices?
- **Attribution Rating:** What proportion of farmers attribute these positive changes to DigiCow?
- **Causality Rating:** How strong is the causal linkage between DigiCow and improved health and medical practices?
- **Facilitated and Direct Training:** Is there a difference in outcomes between farmers receiving facilitated training and those directly trained via the app?

66%

made **positive** changes to health-related practices

21%

directly attribute these positive changes to DigiCow

Causality Rating: Medium

Target Behaviour

DigiCow's digital platform and facilitators help dairy farmers better monitor their cattle's health and improve their medical practices. Farmers are trained on farm hygiene, timing of vaccinations, frequency of de-worming and spraying for ticks, and disease identification. DigiCow offers additional medical services through the mobile app, wherein farmers can input data on the health of their cattle, chat directly with peers and digital vets, or even request a vet be dispatched within the hour.

What We Asked

We asked farmers what changes, if any, have they made to their health and medical practices in the last 5 months. The reported changes were compared to intended behaviour changes mentioned in DigiCow's training content to identify overlap.

What We Heard

66% of farmers changed cattle health-related practices as instructed in DigiCow's training. We call these 'positive changes.' When asked why they made these changes, 21% directly attributed the positive changes to DigiCow. This suggests a **medium causal relationship** between DigiCow and farmers' improved health-related practices.

In addition, 12% of farmers indirectly attributed these positive changes to DigiCow. That is, they described the format or content of DigiCow's training but did not mention it by name. It is possible that DigiCow's impact is underrepresented as close to a quarter farmers mentioned visits from extension agents or vet officers. These officers could represent DigiCow; however, this cannot be confirmed as farmers did not mention DigiCow by name.

Interestingly, climate also played a role in improving health-related practices. The prolonged drought in Kenya led to decreased quantity and quality of available fodder, which in turn increased infection and disease in cattle. This nudged farmers to adopt positive health practices in order to improve the health of their sick cattle.

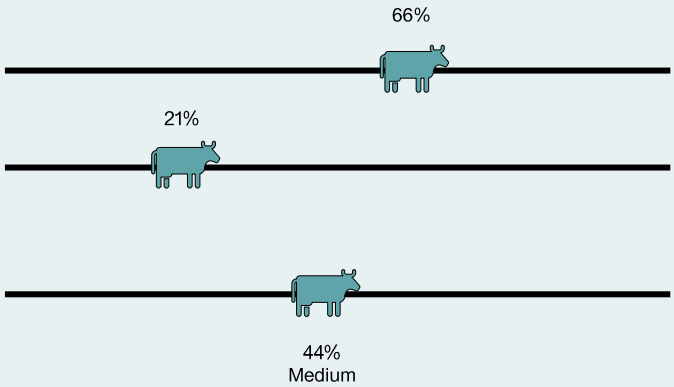
A third of farmers reported that their health-related practices did not change in the last 5 months. Most often, this was a personal choice because they felt they were already implementing positive health-related practices.

Causality Rating

Impact Rating: % reporting uptake of intended behaviour

Attribution Rating: % attributing behaviour change to DigiCow

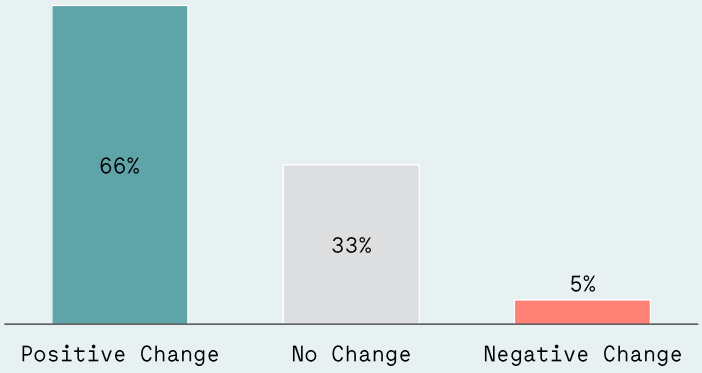
Causality Rating: average of the two percentages



Two thirds of DigiCow farmers report a positive change in their cattle health and medical practices in the last 5 months.

Changes in Health & Medical Practices

Q: Thinking about your dairy farm in the last 4-5 months, since the Easter holiday, has the way that you treat and monitor your cattle's health changed? (n=114). Open-ended, coded by 60 Decibels.

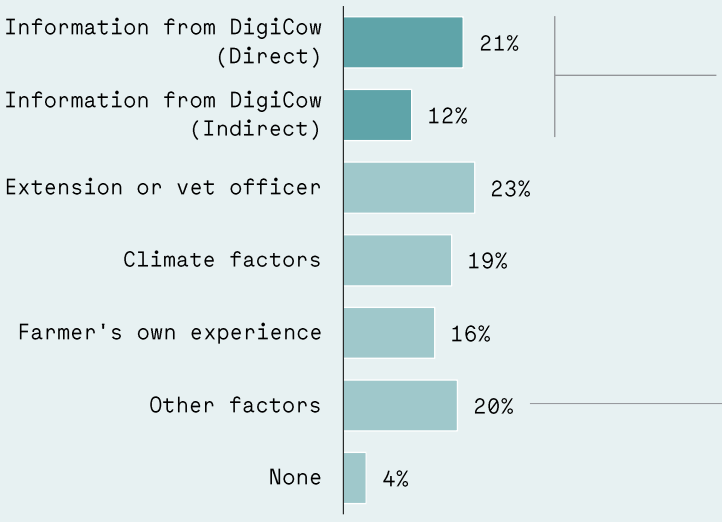


> "Before, I used to pay little attention to deworming. I now deworm more often. I learnt this from the DigiCow platform, and I also ensure vaccination is done on time.
> - Male, 50

Of the farmers reporting positive changes to their health practices, a third attribute these changes to DigiCow's training either directly or indirectly.

Reason for Change in Health and Medical Practices

Q: Why have you changed/not changed the way you feed your cattle in the last 5 months? (n = 75 who reported Positive Change) Open-ended, coded by 60 Decibels.



33%

Attribute positive changes to DigiCow

Other factors include:

1. Information from the Internet
2. Information through another company or cooperative
3. Agricultural school or studies

The three most common improvements in health-related practices are more frequent de-worming and spraying for ticks, closer monitoring of cattle health, and regular visits from a vet officer.

Most Common Positive Changes to Health-Related Practices

Q: Please explain these changes to your health-related practices. (n = 75 reporting positive changes). Open-ended, coded by 60 Decibels.

61%

talk about frequent de-worming and spraying for ticks
(46 respondents / 40% of all respondents)

33%

mention closer monitoring of cattle health and heat
(25 respondents / 22% of all respondents)

29%

report increased interactions or change in their vet officers
(22 respondents / 19% of all respondents)

37%

attribute this change to DigiCow
(17 out of 46 respondents)

28%

attribute this change to DigiCow
(7 out of 25 respondents)

18%

attribute this change to DigiCow
(4 out of 22 respondents)

“Before, I did not deworm my cows regularly. This was an important factor that contributed to milk production. Also, I was advised to change the deworming medicine used because sometimes the worms would get resistant to a specific medicine. I learn all this from the DigiCow representative.
- Male, 23

“Due to the change in climate, cattle diseases have very much increased, and I have to regularly treat my animals to prevent bigger damage or even death of any cow. We are also getting training from DigiCow on how to identify different diseases and the correct drugs to use to treat them.
- Female, 42

“I keep a closer eye on my cattle and their movement. If I discover any kind of diseases, I make sure I engage a veterinary officer. I have been using the knowledge that I acquire from the Internet. Before, I did not have technology like DigiCow.
- Female

Difference in Impact: Direct vs Facilitated Use

A higher proportion of respondents who accessed DigiCow's information indirectly through an extension agent implemented recommended health-related practices compared to those who used DigiCow's app directly (77% vs 55%).

Particularly, facilitated group-based training was more likely to encourage farmers to start regularly de-worming and spraying for ticks, compared to app-based training (28% vs 12%). This holds true for other behavioral changes such as closer monitoring of health and heat as well.

Fewer respondents who were trained by extension agents attribute this change directly to DigiCow (14% vs 31%). This suggests that while in-person trainings facilitated by DigiCow are slightly more effective in terms of impact, direct usage of the app is increasing exposure to the DigiCow brand.

Facilitated Use

77% reported improvements in health-related practices in the last 5 months

(43 of 56 respondents)

14% directly attribute this change to DigiCow

(6 of 43 respondents)

Direct Use

55% reported improvements in health-related practices in the last 5 months

(32 of 58 respondents)

31% directly attribute this change to DigiCow

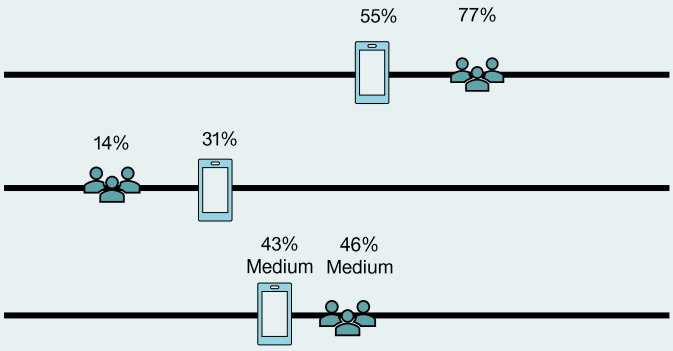
(10 of 32 respondents)

Causality Rating

Impact Rating: % reporting uptake of intended behaviour

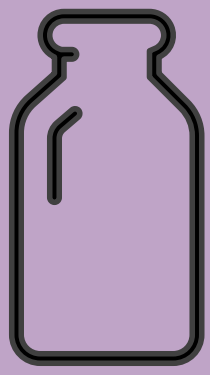
Attribution Rating: % attributing behaviour change to DigiCow

Causality Rating: average of the two percentages





> I spray the cows weekly and deworm every 3 months as advised by the agricultural officer. Before Easter, I was spraying every 2 weeks and had not started deworming. My cows are now tick-free and healthy compared to before.
>
> - Male, 47



Production & Revenue

In order to understand the causal impact DigiCow is having on dairy farmers' production and revenue, we asked farmers whether their production and revenue has changed in the last 5 months.

This section shows both the degree to which DigiCow is impacting dairy farmers production and revenue, and exactly how DigiCow's services are having this impact.

The key indicators in this section are:

- **Impact Rating:** What proportion of farmers have increased production and revenue?
- **Attribution Rating:** What proportion of farmers attribute this increase to DigiCow?
- **Causality Rating:** How strong is the causal linkage between DigiCow and increased production and revenue?
- **Facilitated and Direct Training:** Is there a difference in outcomes between farmers receiving facilitated training and those directly trained via the app?

50%

increased production in the last 5 months

30%

directly attribute these positive changes to DigiCow

Causality Rating: Medium

Target Outcome

DigiCow's digital platform and facilitators train farmers in cattle feeding, breeding, and health-related practices, and offer access to digital tools that can help increase production and therefore revenue. The details of these trainings and other services are outlined in previous sections.

What We Asked

We asked farmers what changes, if any, they have experienced in their production in the last 5 months. Because production levels have a direct impact on revenue, we also asked farmers what changes, if any, they have experienced in their revenue in the last 5 months.

What We Heard

50% of farmers reported an increase in production from their dairy farm in the last 5 months. When asked why their production increased, 30% directly attributed this positive change to DigiCow. This suggests a **medium causal relationship** between DigiCow and farmers' increased production.

An additional 14% of respondents reporting positive change described a service similar to DigiCow's without mentioning it by name. We hypothesize that this group is very likely speaking about DigiCow.

Slightly less than half (48%) of farmers reported a decrease in milk production. This decrease was often attributed to the prolonged dry season in Kenya which led to an insufficient supply of grass and fodder for cattle. Market prices were another driver of decreased milk production, as many farmers reported that costly animal feed and supplements meant they could not afford high-quality inputs for their farm. Women were more likely than men to report market barriers to increasing production.

Related to production, almost the same number of farmers reported increased (51%) and decreased (45%) revenue. Increased production due to DigiCow's training was a strong determinant of increased revenue. In addition, a number of farmers reported that strategic business decisions, like marketing online or selling to new vendors, helped to increase revenue over the 5-month period. Men were more likely than women to report an increase in production and revenue.

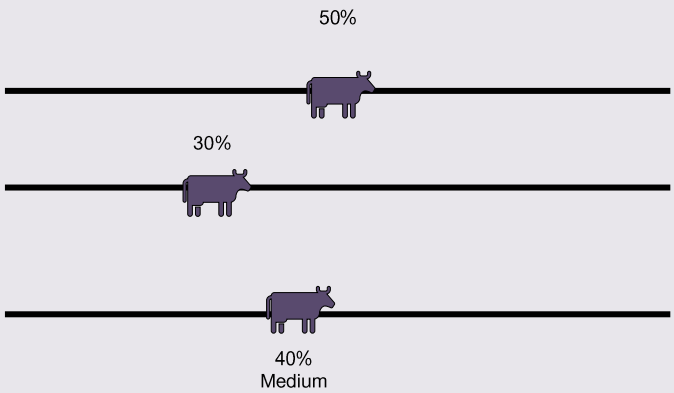
Few farmers reported that their revenue did not change in the last 5 months. Most often, this was because their production remained the same or their milk was only for household consumption.

Causality Rating

Impact Rating: % reporting uptake of intended behaviour

Attribution Rating: % attributing behaviour change to DigiCow

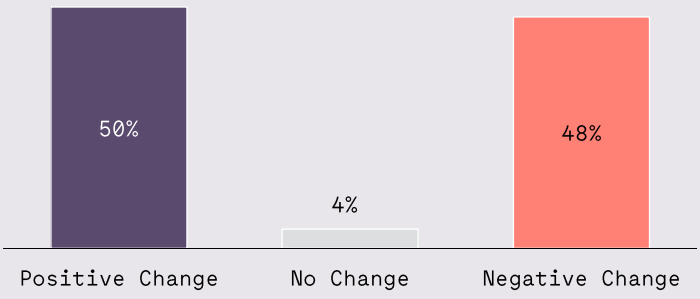
Causality Rating: average of the two percentages



Half of the DigiCow farmers we spoke to report an increase in their production in the last 5 months

Changes to Production

Q: Thinking about your dairy farm in the last 4-5 months, since the Easter holiday, have there been any changes in your production? (n=114)

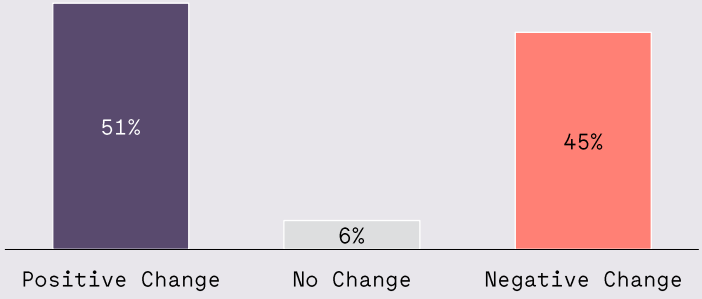


> There has been an increase in production. This is because I added supplements that I was advised by a DigiCow facilitator.
> - Male, 26

Over half of the DigiCow farmers also report an increase in their revenue in the last 5 months.

Changes to Revenue

Q: Thinking about your dairy farm in the last 4-5 months, since the Easter holiday, have there been any changes in your revenue? (n=114)

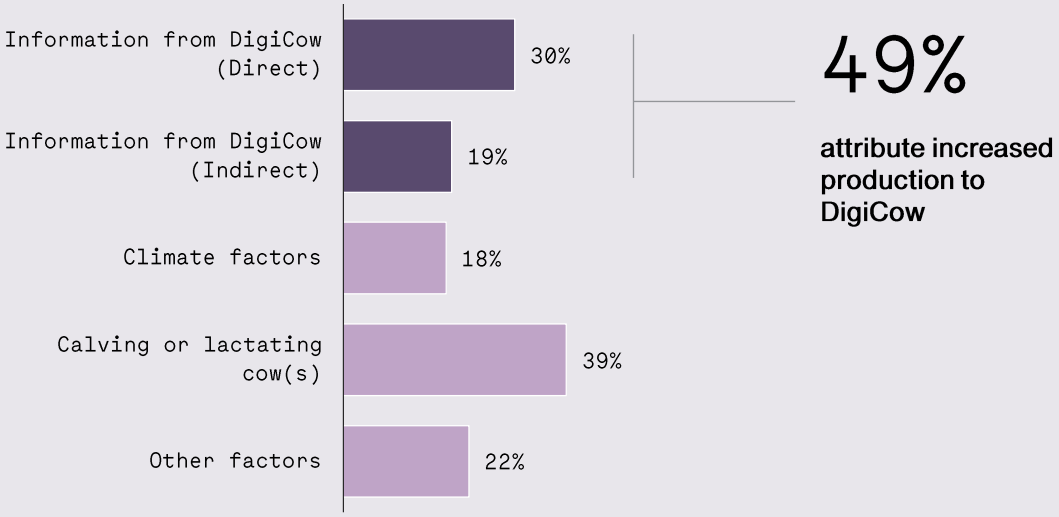


> We are selling about 50 liters more to what we used to sell because 3 of our cows calved. We also used other supplements like calcium salt for the cows which has significantly increased quantity of milk produced.
> - Female, 33

Almost half of the farmers reporting increased production, attribute it to DigiCow's services, either directly or indirectly.

Reasons for Change in Production

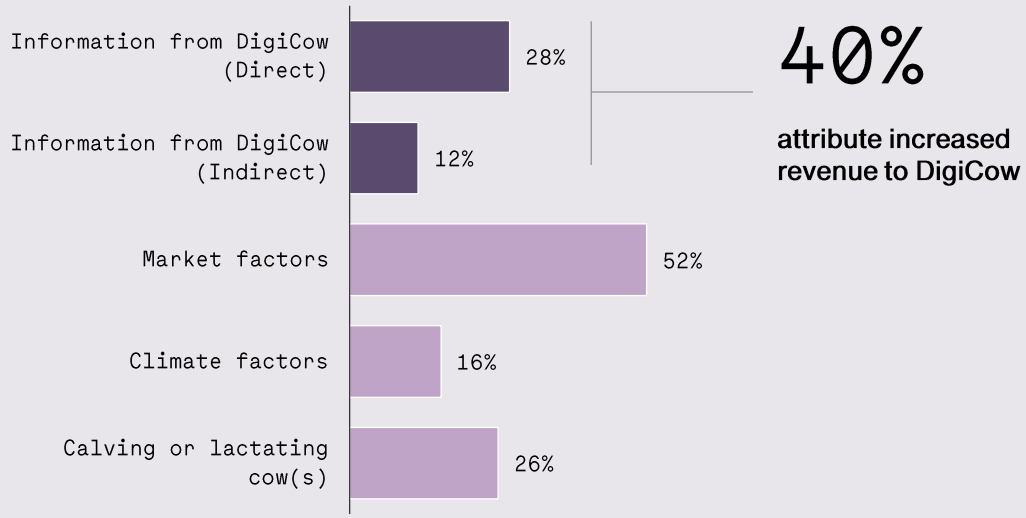
Q: Why has your production changed/not changed in the last 5 months? (n = 57 who reported Positive Change)



2 in 5 farmers reporting increased revenue attribute it to DigiCow's services.

Reasons for Change in Revenue

Q: Why has your revenue changed/not changed in the last 5 months? (n =58 who reported Positive Change)





Farmers most commonly attribute increases in production to calving and the introduction of dairy meals and mineral salts. The latter two are often attributed to DigiCow's training.

Most Common Practices that Increased Production

Q: Please explain these changes to your production (n = 57). Open-ended, coded by 60 Decibels.

42%

talk about their cows calving, leading to more production
(20% of all respondents)

0%

attribute this change to DigiCow
(0 out of 24 respondents)

> "I have seen an increase in milk production in the last five months since 3 of the 5 cows I milk calved recently. Fresh from calving, the cows increase milk they produce as their hormones tend to produce more milk in the first few months after calving.
> - Male, 51

37%

report introducing dairy meals and other supplements
(18% of all respondents)

57%

attribute this change to DigiCow
(12 out of 21 respondents)

> "Milk production increased to 14 liters per day. I attribute this to the introduction of protein and carbs in the cows' meals which boost milk production. Earlier, I was feeding them Napier grass or just let them graze. I made this change after I joined DigiCow.
> - Male, 39

37%

mention using mineral salts to improve milk production
(18% of all respondents)

81%

attribute this change to DigiCow
(17 out of 21 respondents)

> "After getting good training from DigiCow trainers on how to manage cows, production of milk has started increasing. I was trained on the importance of using daily meals and other supplements like mineral salts to boost production.
> - Female, 45

Difference in Impact: Direct vs Facilitated Use

Although users who received DigiCow's content through group training are slightly more likely to report an increase in production than DigiCow app users (54% vs 47%), the latter are much more likely to attribute the change explicitly to DigiCow. 37% of app users attribute production improvements to DigiCow compared to 27% of farmers receiving facilitated group training.

Reports of change in revenue follow a similar trend.

Facilitated Use

54% reported an increase in production in the last 5 months

(30 of 56 respondents)

27% attribute this change to DigiCow

(8 of 30 respondents)

Direct Use

47% reported an increase in production in the last 5 months

(27 of 58 respondents)

37% attribute this change to DigiCow

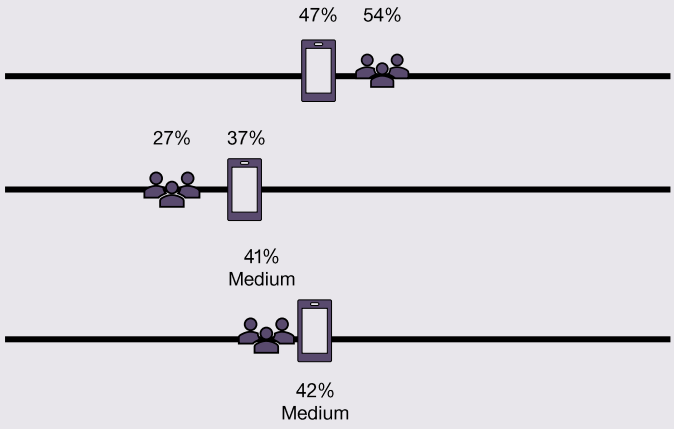
(10 of 27 respondents)

Causality Rating

Impact Rating: % reporting uptake of intended behaviour

Attribution Rating: % attributing behaviour change to DigiCow

Causality Rating: average of the two percentages



“

There has been an increase in production. This, I'm sure, is because I added supplements that I was advised by a DigiCow facilitator which would increase minerals in the cows' diet. Also, I was advised about regular deworming which led to a noticeable improvement in the animals' health. The combination of both factors is what led to the increase in milk production.
- Male, 21





Comfort with Digital Tools

This section provides insight into the access, usage, and comfort of DigiCow's farmers with using digital tools to support their farming activities.

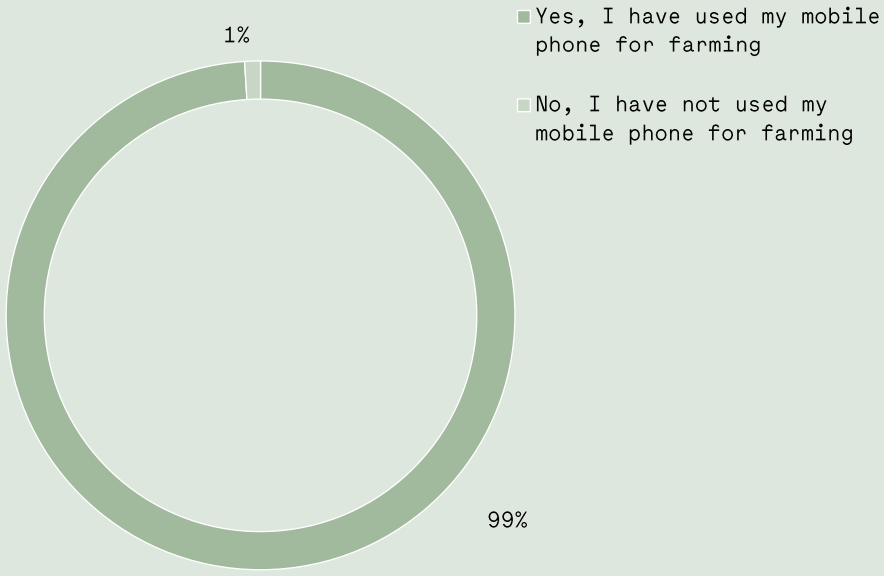
The key indicators in this section are:

- **Mobile phone use:** Are DigiCow's farmers using a mobile phone for their farming activities? What do they use them for and how?
- **Access, usage and trust in companies:** What digital tools are DigiCow farmers trying to access? What digital tools are they using?
- **Comfort with digital tools:** Have DigiCow farmers' comfort with using digital tools changed because of interacting with the DigiCow application or receiving group training?

Almost all DigiCow farmers use a mobile phone to support their farming activities.

Usage of Mobile Phone for Farming

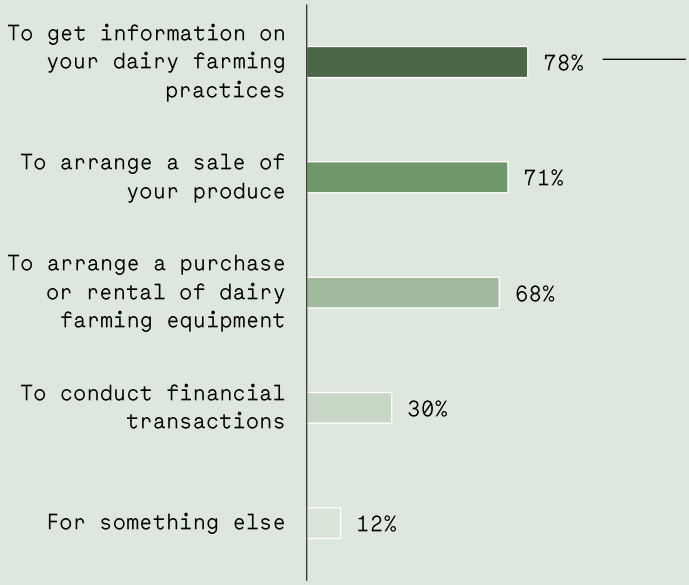
Q: Do you use a mobile phone to support your dairy farming activities? (n = 114)



Nearly 4 in 5 farmers say they use a mobile phone to get information on dairy farming practices, primarily using phone calls to access information.

Type of Activity

Q: Which dairy farming activities do you use a mobile phone for? (n = 114)

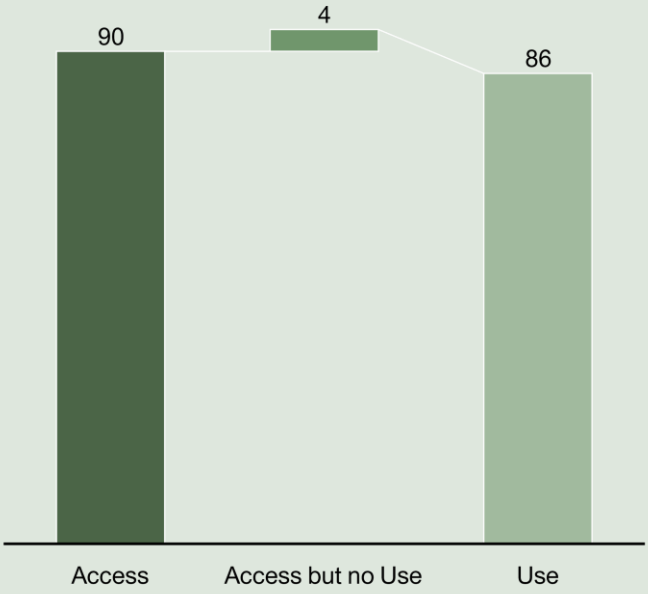


How is the mobile phone used to access this service	
Phone Call	57%
Other internet website	47%
SMS - USSD	32%
WhatsApp	23%
Application	19%
IVR	11%
Facebook	8%

90% of farmers report trying to access digital services to support their farming activities, and 86% report using at least one digital service.

Access and Use of Digital Farmer Services

Q: Which dairy farming activities do you use a mobile phone for? (n = 111)
Q: How many companies or organisations have you tried to access for your farming activities? n = 111) Open-ended, coded by 60 Decibels.
Q: How many companies or organisations do you currently use for your farming activities? (n = 111) Open-ended, coded by 60 Decibels.



2.7

Average number of digital information service **providers a farmer has access to**

1.9

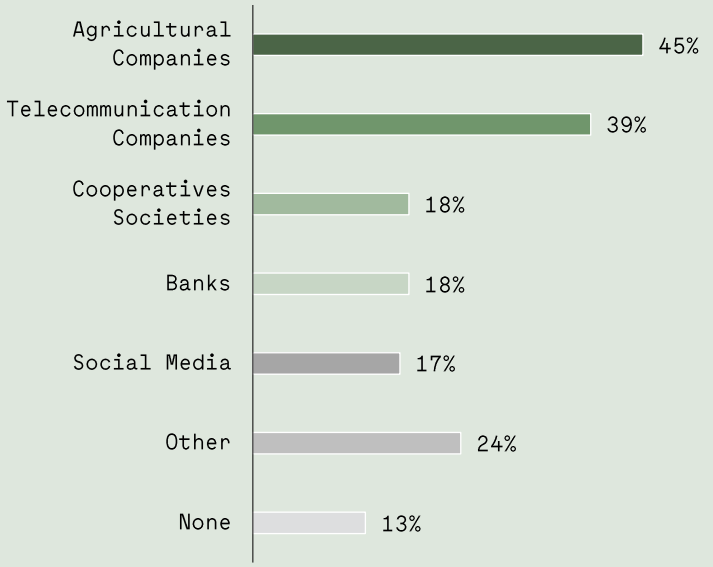
Average number of digital information service **providers used** by a farmer

> “Another thing is due to easy access to technology like smartphones and the internet one can learn different ways to cope with climate shocks, like through YouTube and online. I will also say due to the ability to use the mobile phone, it has slightly helped to increase on how to provide feeds to animals and how to store fodders to use during dry season.
>
> – Female

Nearly half of all farmers report trying to access an agricultural company using a mobile phone, with 1 in 3 mentioning DigiCow.

Access

Q: Which companies or organisations have you tried to access for your farming activities?
(n = 111) Open-ended, coded by 60 Decibels.



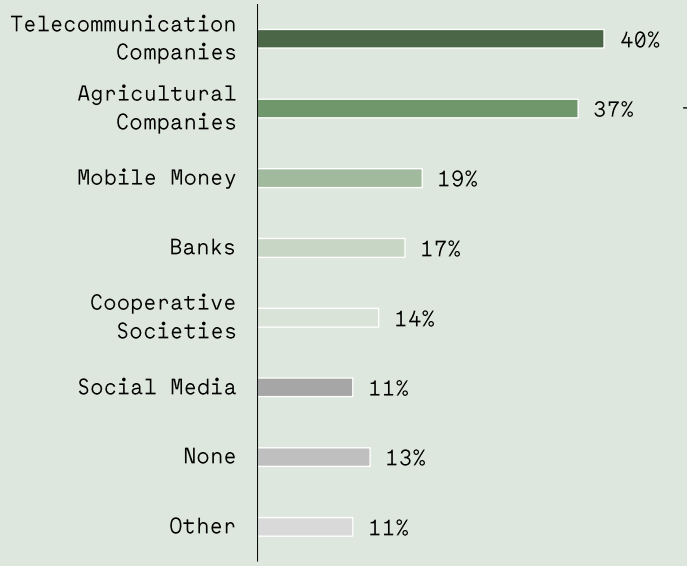
33%

of all respondents mentioned DigiCow specifically

Almost all farmers who tried to access DigiCow to support their farming activities were successful in doing so.

Usage

Q: Which companies or organisations do you currently use for you dairy farming activities?
(n = 112) Open-ended, coded by 60 Decibels.



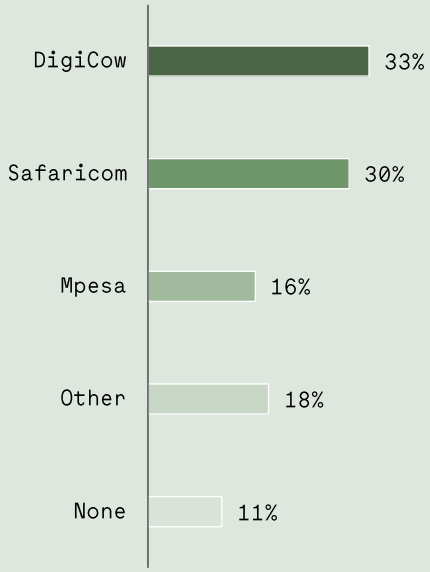
31%

of all respondents directly mentioned using DigiCow

1 in 3 farmers say DigiCow is the digital service they both trust and use the most to support their farming activities.

Trust in digital services

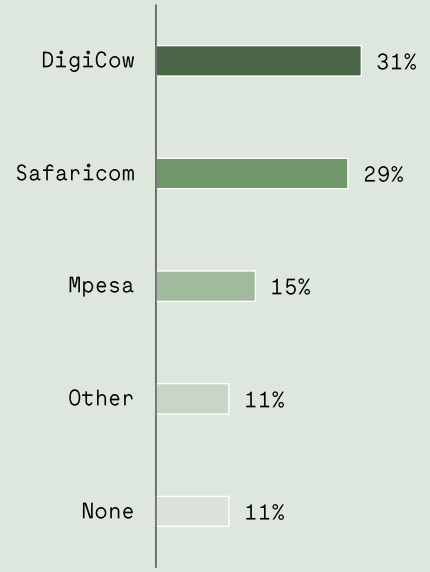
Q: Of the companies or organizations you currently use, which do you trust the most? (n = 114). Open-ended, coded by 60 Decibels.



> “I use my mobile phone to call an extension offer when it is health-related.
> – Male, 24

Most used digital services

Q: Of the companies or organizations you currently use, which do you use the most? (n =114). Open-ended, coded by 60 Decibels.

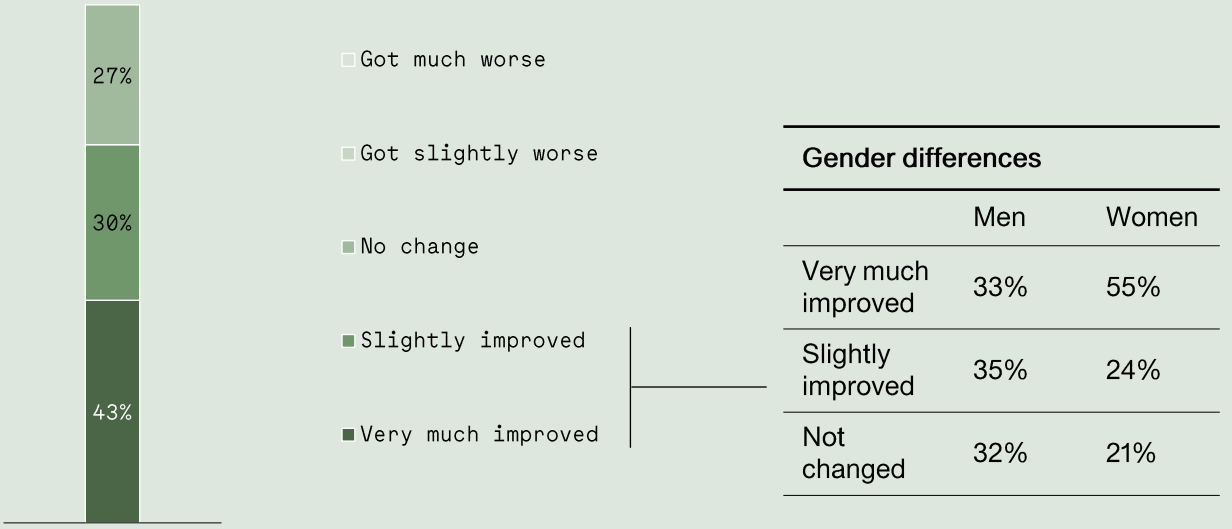


> “I now use the internet for searching for queries and methods of increasing production.
> – Male, 24

73% of the DigiCow farmers report that using digital agricultural services improved their comfort with digital tools. Women are more likely to report improvements than men.

Comfort with digital tools

Q: Has your comfort with using digital tools changed because of working with these companies or organisations? (n = 113)

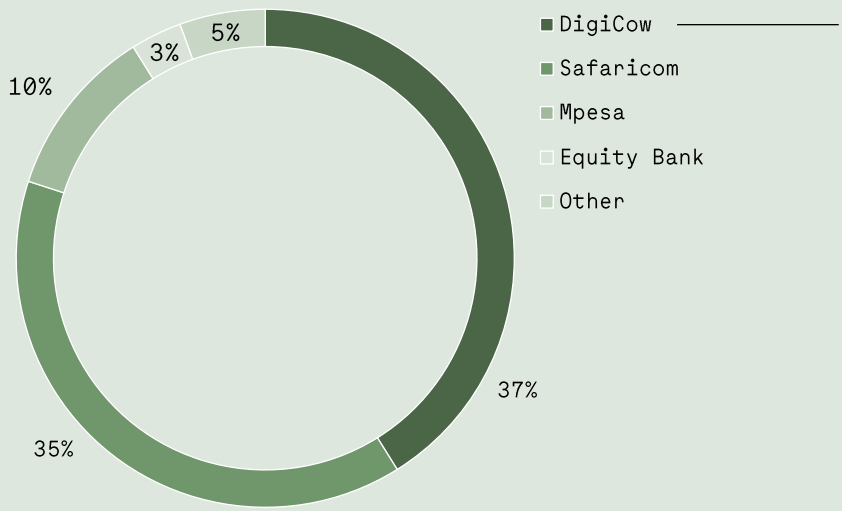


Gender differences		
	Men	Women
Very much improved	33%	55%
Slightly improved	35%	24%
Not changed	32%	21%

For those reporting a positive change, DigiCow is the top organisation farmers associated this positive change with.

Ranked digital agricultural services that influenced comfort with digital tools

Q: Can you rank the specific companies or organizations you associate this change with, if any? (n = 114).



37%

of all respondents ranked DigiCow as the first organisation to improve their comfort with digital tools

Ease of use and improved skills and knowledge are driving increased comfort with digital tools for 73% of farmers.

Reason for change in comfort with digital tools

Q: Can you tell me why your comfort with digital tools has changed/not changed? (n = 113)

28%

talked about how quick and easy it is to use digital services
(20% of all respondents)

27%

mentioned how their farming skills and knowledge have improved since using digital tools
(19% of all respondents)

20%

reported being able to better access information through digital means
(15% of all respondents)

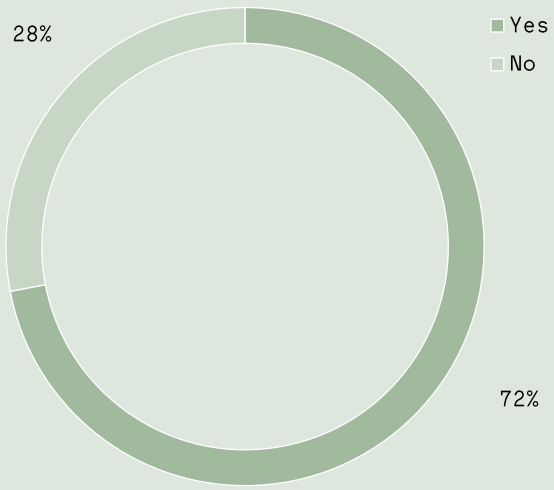
11%

mentioned how their record keeping has improved after using digital services
(8% of all respondents)

Roughly 3 of 4 farmers report that they now feel encouraged to use other types of digital tools.

Interest in using other digital tools

Q: Has the use of [previously mentioned organizations] encouraged you to use other digital tools to support your dairy farming activities? (n = 113)



> I lacked technical know-how on how to manage the dairy cows. Since I started to attend both physical and virtual seminars on ways to 'treat' the cows, I have seen tremendous improvements. From the training sessions, I now apply the correct feeds and supplement proportions that increase cows production. Also, I have engaged services of a veterinary officer who helps in administering medication to the cattle and offers advisory services where possible.
>
> - Male, 32



Source: USAID

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About 60 Decibels

We're a tech-enabled impact measurement company, working in over 50 countries worldwide. Our repeatable, standardized approach to gathering data allows us to gather robust impact indicators and rich graduate insights direct from end users. We also provide genuine benchmarks of impact performance, enabling our clients to understand their impact relative to peers and to make informed decisions regarding how to improve their impact. Our clients include over 350 of the world's leading impact investors, companies, foundations, corporations, NGOs, and public sector organizations.

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Thank You For Working With Us!

Let's do it again sometime.

We'd love to hear your feedback on working with 60dB; take 5 minutes to fill out our feedback survey here!

Stay In Touch

Please sign up for The Volume, our monthly collection of things worth reading.

Acknowledgments

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