

What Determines Farmer's Use of Digital Extension Tools

Study about Blended Learning with The Lentera DESA Website

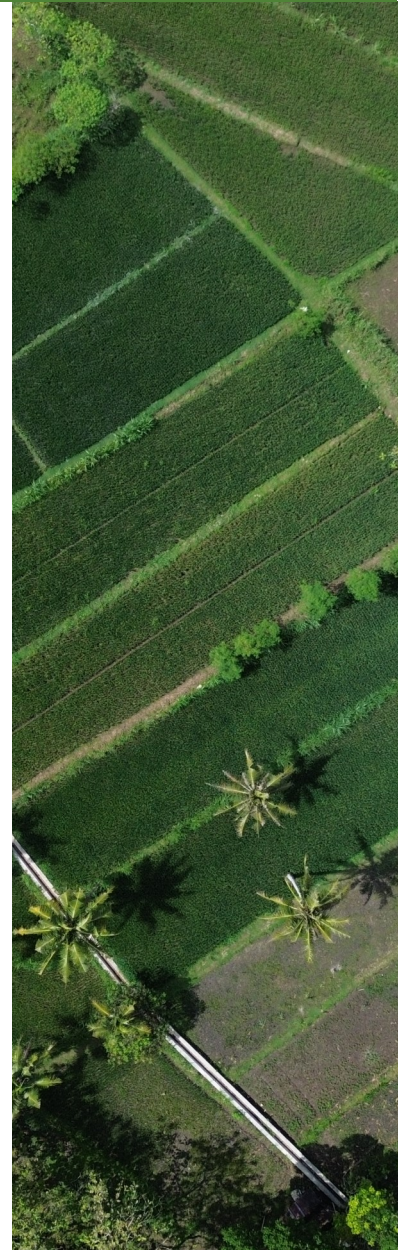
Background

The increasing utilization of the internet in Indonesia holds significant promise for agricultural knowledge enhancement. Farmers have diverse information needs spanning agricultural cultivation techniques, soil fertility management, pest control, post-harvest management, and market information. However, the digitalization of agricultural information is also necessitated by the shortage of extension workers in Indonesia. Due to this shortage, extension workers have to fulfil multiple roles as initiators, facilitators, motivators, teachers, analysts, and change agents. To address this, collaborative efforts between extension workers and agricultural stakeholders are underway to increase the digitalization of extension services. This often involves integrating digital platforms with conventional face-to-face extension, known as the blended learning approach. Yet, not all communities can optimally utilize digital resources, especially considering the older age of many farmers.

This policy brief explores the utilization of online agricultural information by farmers in Yogyakarta through the Lentera Desa website, an online extension platform. In a blended learning setting, conventional face-to-face training was combined with digital extension services. Sampling was conducted across 46 villages in Yogyakarta. Farmers were offered either a 1-day training on soil health management or a 2-day training. The 2-day training additionally included soil testing using the PUTS. Subsequently, all farmers gained complimentary access to online training via the Lentera DESA website.

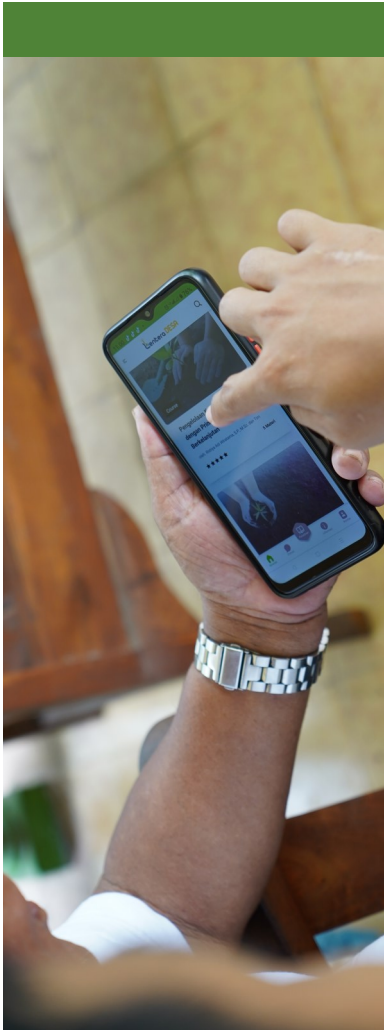
Specifically, this policy brief addressed the following questions:

1. After face-to-face training, did farmers use the Lentera Desa website? What is the extent of their use?
2. Does the type of face-to-face training influence farmers' use of the website?
3. Which farmer characteristics influence the use of digital extension resources/the Lentera Desa website?



Topics

- The training and Lentera DESA
- Farmer's use of online resources to find agricultural information
- Use of Lentera DESA
- Determines farmers' use of Lentera DESA



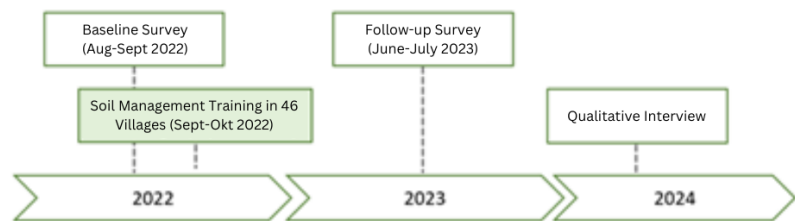
The Lentera DESA Website

Lentera Desa is an online education and training platform in the field of agrocomplex (agriculture, fisheries, and animal husbandry). On the Lentera Desa platform, farmers could access instructional videos to review and enhance the content covered during face-to-face training sessions. The videos primarily concentrate on sustainable soil health management and are typically between 2 to 10

Location and Respondent Characteristics

This research was conducted in 46 villages across three districts in Yogyakarta: Bantul District, Kulonprogo District, and Sleman District. Pre and post-training data were collected in August 2022 and June 2023. Respondents were sampled at the farmer group level. In total, 736 farmers were interviewed, i.e. 16 from each sampled village. The vast majority of respondents (89%) were male, with the majority being aged 51 years or older. Approximately half of the respondents has completed high school, while a small percentage (7%) hold a university degree. The remaining respondents have completed junior high school or elementary school, with a few having no formal education. Additionally, most respondents indicated that agriculture was not their main occupation and that they supplemented their income with side jobs.

Figure 1: Research Timeline

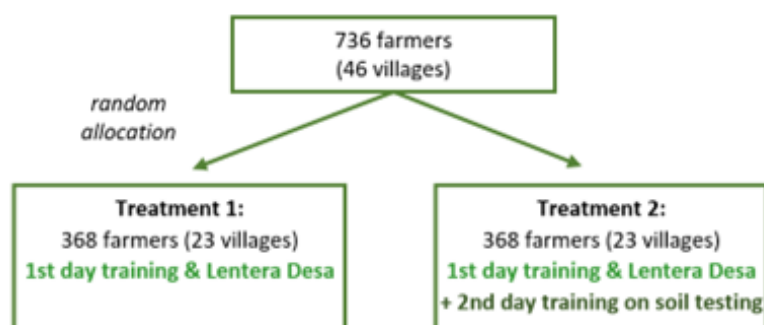


The Blended Learning

Villages were randomly allocated to three groups: control group, treatment 1 (1-day training) or treatment 2 (2-day training). Depending on the random assignment of their village, farmers were invited to a 1-day and 2-day training on soil management. The control group received no training. In this research, only the farmers in the 1-day and 2-day training group are considered.

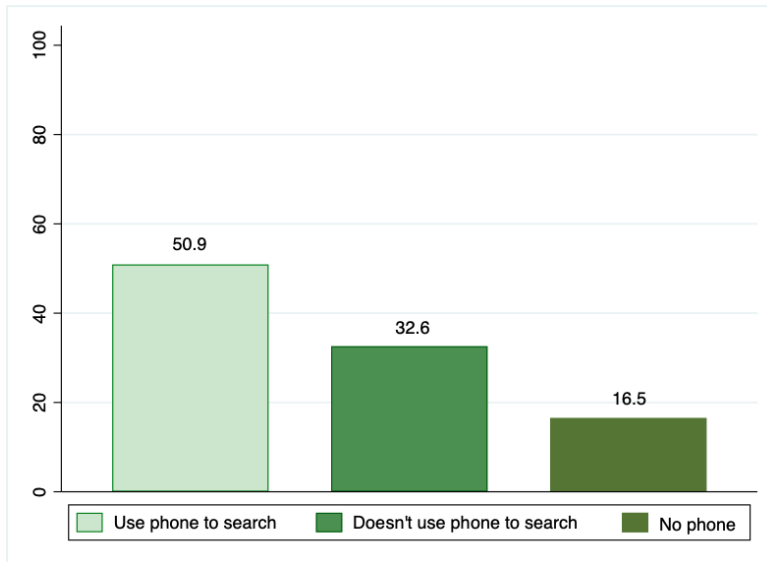
The trainings were participatory and focused on sustainable soil health management. In the 2-day training, farmers were additionally taught how to use the PUTS soil test kit using a soil sample from their own plots. All invited farmers were given free access to the online extension platform Lentera Desa, which is operated by UGM. smartphones.

Figure 2: Research Design



Farmers' Use of Online Resources to Find Agricultural Information

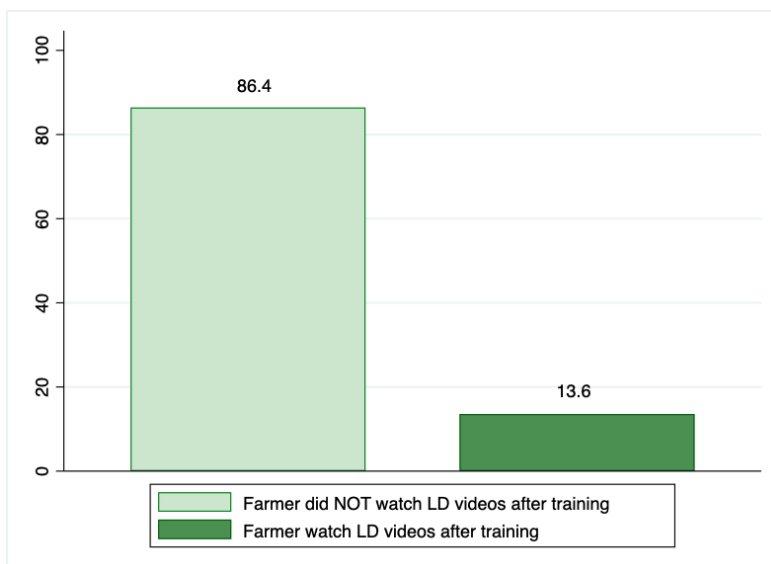
Figure 3: Smartphone Usage by Farmers



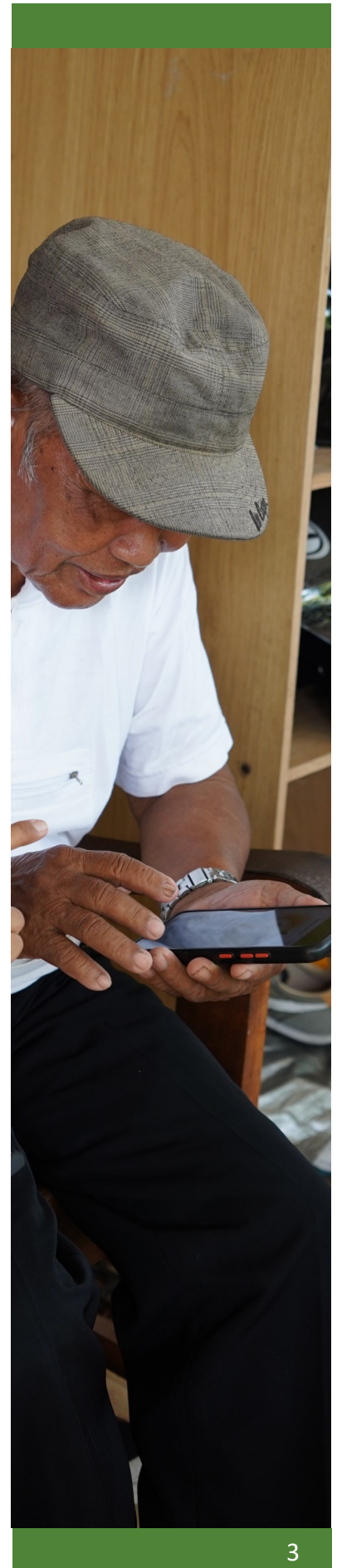
Before the training and introduction to the Lentera DESA website, 50.9% of respondents reported to use the internet to search for agricultural information. This share is quite high considering that the majority of respondents are aged 51 years or older.

Use of The Lentera DESA

Figure 4: Use of Lentera DESA by Farmers after Training



During the training, farmers were introduced to and given free access to the Lentera Desa website in the hope that they could utilize it independently as an information source after the face-to-face training. However, while 50.9% of respondents reported that they had previously searched online for agricultural information, the take up of the Lentera Desa website is low. Only 13.6% of respondents actually used it.



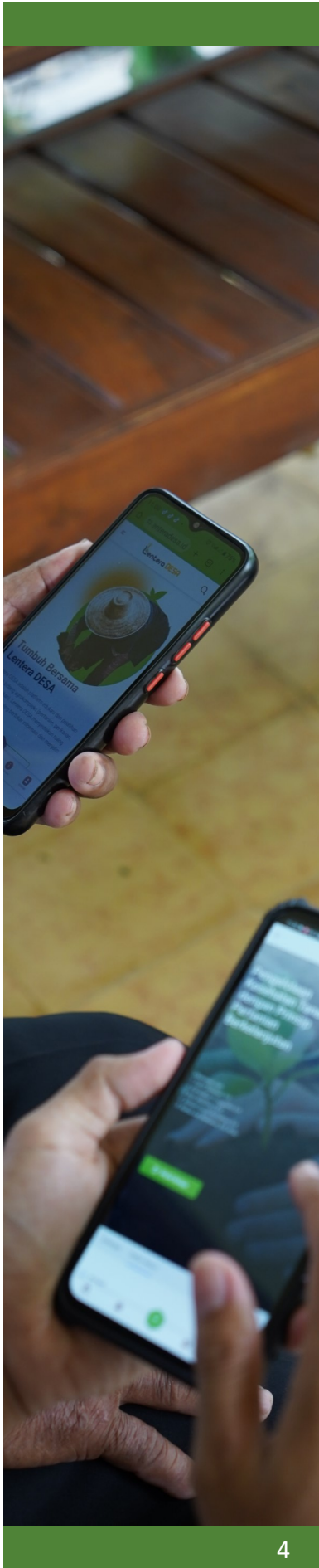
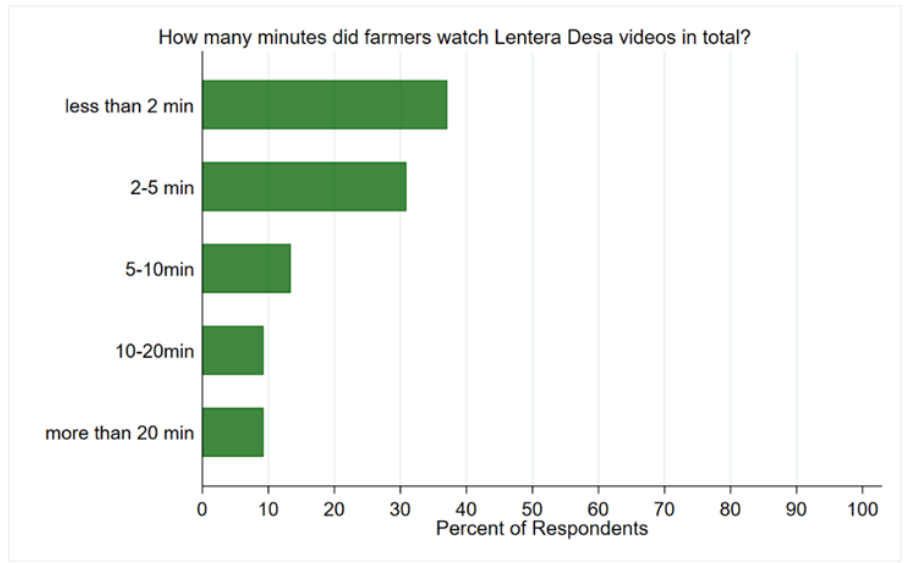


Figure 5: Farmers Watch Lentera DESA in Minutes



Among the farmers who logged in and watched videos on the platform, the majority (47%) spent less than two minutes viewing the content. Surprisingly, only a small fraction, comprising merely 4% or 10 farmers, watched for more than 20 minutes. The data on the duration of the total time spent watching videos indicates that training videos can be optimized by limiting them to 2-5 minutes as few farmers are willing to watch long videos. Important information can also be communicated at the beginning of the video so that farmers can immediately obtain important information from the video.

Determinants of Using the Lentera DESA Website

Training: The type of training, 1-day or 2-day training with PUTS, does not influence farmers' use of the Lentera Desa Website. This is even though the Lentera Desa website offered even more information for farmers participating in the 2-day training, including videos on how to conduct the PUTS and how to calculate fertilizer amounts.

Age: Interestingly, our data does not show that age is related to the use of the Lentera Desa website.

Education: Farmers who have a university degree are 24 percentage points more likely to use the Lentera Desa platform again after the training. Farmers with higher education who log into the Lentera Desa website after the training also spent more time watching videos.

Smartphone Ownership: Farmers who own a smartphone were more likely to log into the Lentera DESA website.

Experience with Online Information: Farmers who used the internet to search for agricultural information even before our training are also more likely to use the Lentera Desa platform. This suggests that only farmers who are already familiar with using online resources can easily access online learning platforms. Other farmers might need more guidance and practice.



Joint Research Project

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Blended learning training aims to improve access to knowledge and the cost-effectiveness of training, increase the capacity of training participants, and help the facilitator's role in accompanying training participants. However, based on the research data, it is still necessary to have a facilitator role for some participants to provide direct support for using blended learning media to reach the stage where training participants can use combined learning media independently.

Key Messages:

- Half of the farmers use the internet to occasionally search for agricultural information.
- Most farmers do not immediately use online extension resources after the first introduction.
- Because most farmers spent less than 2-5 minutes watching videos, it is important to keep videos short and deliver the most important information at the beginning.
- The use of the Lentera Desa website is related to farmers' education, smartphone ownership and whether they used the internet before to search for agricultural information.
- Most farmers in Yogyakarta do not have high educational degrees and thus need more assistance with using online platforms.