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Plantation Plant Certification Development Model at UPTD Bp2mb Plantation Service of Lampung Province

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ABSTRACT

The purpose of this study was to create a development model for implementing online plantation crop certification in Lampung Province, as well as the factors that hindered the development of the implementation model for plantation crop certification. Analysis of the data used is using qualitative analysis. One aspect that greatly determines the success of plantation development is seed handling, the use of superior and quality seeds. The Technical Implementation Unit of the Seed Quality Supervision and Testing Office (UPTD BP2MB) which has the main task and function of carrying out distribution control, seed quality testing and certification of plantation plant seeds to obtain superior/quality seeds, by carrying out certification includes activities of examining seed documents, inspecting plantations in the field as well as carrying out the function of monitoring seeds circulating in the community in a sustainable manner. The results of the study concluded that the development model for implementing online plantation crop certification in Lampung Province can be carried out at the stage of applicant registration and fulfillment of certification requirements documents. Meanwhile, for the stages of field inspection, laboratory tests, monitoring of labeling and distribution of goods cannot be done online. Factors that can hinder the development of models for implementing online plantation crop certification in Lampung Province include, a) Limited personnel resources, b) Locations that are not accessible by internet networks, and c) Lack of understanding of breeders in using computers and Internet.

Keywords: *Certification Development Model, Plantation Plants, Information Technology.*

INTRODUCTION

The plantation sub-sector is one of the economic sectors that has an important role in development. The development of this sub-sector is often used as a benchmark for the progress of an area, because it has a positive impact on economic growth and provides job (Barusman and Habiburrahman, 2022). Besides being a contributor to the country's foreign exchange, a source of income for farmers, and creating jobs, plantation activities carried out also need to be supported by the quality of the existing elements, one of which is the availability of superior seeds (Bulegon *et al.*, 2017).

Lampung Province is one of the provinces that has the potential to be a guideline for seed source plantations that are able to meet the needs of seeds in all regions in Lampung Province to outside the province, this is supported by the availability of planting materials that have been recommended by the Government as quality planting materials.

One aspect that greatly determines the success of plantation development is seed handling, the use of superior and quality seeds. The Technical Implementation Unit of the Seed Quality Supervision and Testing Office (UPTD BP2MB) which has the main task and function of carrying out distribution control, seed quality testing and certification of plantation plant seeds to obtain superior/quality seeds, by carrying out certification includes activities of examining seed documents, inspecting plantations in the

field as well as carrying out the function of monitoring seeds circulating in the community in a sustainable manner.

Seed certification is a series of administrative and technical checks in order to issue a seed quality certificate. One of the objectives is to provide superior seed quality assurance and protect consumers or seed users from the distribution of counterfeit seeds and seeds of poor quality (Wang *et al.*, 2016). The basis for implementing plantation crop seed certification is contained in Law Number 39 of 2014 concerning Plantations, and Regulation of the Minister of Agriculture Number: 50/Permentan/KB.020/9/2015 of 2015, Production, Certification, Distribution and Supervision of Plantation Plant Seeds (Etwire *et al.*, 2013). The use of certified and labeled seeds actually brings benefits to seed producers and consumers. For seed producers other than as a legality certified seed has a higher selling price so that economically it will increase the income of seed producers, while for consumers it can be used as a guarantee of seed quality (Wang *et al.*, 2016).

The process of certifying plantation commodity seeds which is currently being carried out by the Seed Quality Supervision and Testing Office Technical Implementation Unit (UPTD BP2MB) is still conventional, with the certification flow mechanism being that first the Applicant, both an individual and a CV, submits an application letter to the Head of UPTD BP2MB to be carried out administrative process to find out the completeness of the administration documents (IUP, seed documents, hatcheries, co-owners of the plantation) which is then carried out by field inspection of the seeds. If the specified conditions have been met, BP2MB will carry out a labeling process and, finally, ready-to-distribute supervision is carried out (Sugiarto and Raisawati, 2021). The time needed to process the proposal for certification of plantation commodity seeds until they are ready for distribution is a maximum of 10 working days provided the administrative requirements are complete (Wattnem, 2016).

To find out the number of plantation commodity seeds submitted by individuals and by companies can be seen in the following table:

Table 1. Development of Proposed Plantation Commodity Seed Certification in Lampung Province in 2019 – 2021

No	Description	Years			
		2018	2019	2020	2021
1	Certification proposal from an individual	24	29	63	96
2	Certification Proposal from a company	17	21	2	4

Source: Processed Data, 2022

Seeing the development of the number of plantation commodity seeds proposed for certification, it is necessary to make an innovation to provide more efficient services through a technology-based certification model. The sophistication of information and communication technology (ICT), especially in the internet field, is very supportive and makes it easier to find information by using a web browser as a medium, one of the utilizations of information and communication technology (ICT) is an online discussion forum as an access to discuss various matters.

The online-based Plantation Plantation Plant Certification Implementation Development Model must be carried out by looking at the current condition that the current manual system is no longer sufficient to cope with the increasing workload, especially routine activities in the fields of procurement, cataloging, and circulation supervision. UPTD BP2MB in the implementation of registration of certification applications currently still uses conventional methods, namely receiving a letter of application from the applicant addressed to UPTD BP2MB, then employees process the applicant's data.

Based on the results of the pre-survey that the researchers have conducted on the Development Model for the Implementation of Plantation Plant Certification online, there are several problems that may hinder the implementation of the development model for the implementation of plant certification,

including the limited human resources of the apparatus, the location of the plantation is not covered by the internet and the certification process is carried out by physical inspection of plants to the field / seed garden, as well as a lack of knowledge of understanding, especially individuals in using computers and the internet. according to the exposure of problem identification in this study, this study wants to discuss the development model for the implementation of plantation plant certification at the UPTD BP2MB of the Lampung provincial plantation office.

LITERATURE REVIEW

a. Seed

The definition of seeds based on Law Number 12 of 1992 concerning Plant Cultivation Systems, is plants or parts thereof that are used to reproduce and/or breed plants. Bina Seeds are seeds that can be produced through generative and/or vegetative propagation (Mainz and Wieden, 2019). Plant seed is everything related to the procurement, management, and distribution of plant seeds. Meanwhile, the so-called Bina Seeds are seeds from superior varieties that have been released whose production and distribution are monitored (Erickson and Halford, 2020).

Based on the Regulation of the Minister of Agriculture of the Republic of Indonesia Number 02/Permentan/Sr.120/I/2014 concerning the Production, Certification and Circulation of Bina Seeds, that to produce Bina Seeds following the standard procedure for Bina Seed Certification or a national standardization system, the Bina Seed Quality Standards used are technical specifications of the seed, which includes the genetic, physical, physiological and/or health quality of the seed. Bina seed production, among other things, can be carried out and processed by individuals, business entities, legal entities or government agencies (Amaliah, 2022).

To be classified as nursery seed of superior varieties, seed must meet the criteria described below:

- a) Superior varieties come from new varieties or local varieties with high potential.
- b) New varieties and local varieties must undergo adaptation tests before being declared as superior varieties.
- c) Adaptation tests for annual crops can be carried out by observing

Adaptation or observation trials are conducted by designated government agencies or breeding organizations based on specified requirements. Seed development can be divided into five groups, namely:

- a) Breeder Seeds, are seeds produced under the supervision of plant breeders or breeding institutions.
- b) Basic Seed, is the first offspring of a breeder seed that meets the quality standards of the Basic Seed class and must be produced in accordance with standardized procedures Seed Certification or national standardization system.
- c) Staple Seeds, which are the first offspring of basic seeds or type seeds that meet the quality standards of the staple seed class and must be produced in accordance with the standard procedures for Seed Certification or the national standardization system.
- d) Scatter Seed, is the first offspring of the first main seed, main seed, basic seed that can meet the quality standards of the scatter seed class and must be produced in accordance with the standard procedure for Seed Certification or the national standardization system.
- e) Seed of Seed (BR Hybrid Varieties), is seed that is produced from crosses of parental strains according to the description of the parental strains as stipulated in the Decree of the Minister of Agriculture on the release of a hybrid variety as stipulated in the Decree of the Minister of Agriculture on the release of a Hybrid variety.

b. Seed Certification

Seed certification is a procedure in the form of periodic administrative and technical inspections with the aim of directing, controlling, and organizing seed propagation and production. The purpose of controlled

seed certification is to have high yield for the community so that it can be reproduced and distributed for later planting with a guarantee of a high genetic identity (Auriol and Schilizzi, 2015).

It can be said that this certification process is also aimed at providing guarantees to buyers or prospective purchasers of seeds (farmers) and/or breeders) regarding aspects of quality assurance, which cannot be determined only by a momentary inspection of the desired seeds. Certification of Bina Seeds is carried out upon applications submitted by seed producers who have been registered and received recommendations as seed producers who produce Bina Seeds and have not yet implemented a quality management system (Wattnem, 2016).

Development Seed Certification Process based on Regulation of the Minister of Agriculture of the Republic of Indonesia Number 02/Permentan/Sr.120/I/2014 concerning Production, Certification and Distribution of Bina Seeds which includes (Prasetyo *et al.*, 2021).

- a) Examination
 - The truth of the source seed
 - Field and planting
 - Plant isolation to prevent wild crossing
- b) Mixed seeds. then there is laboratory testing to test seed quality which consists of physical, physiological and/or seed quality without seed health, while for genetic purity it is taken from the results of field inspection
- c) Supervision of labeling

Certification of Bina Seeds as referred to above is carried out upon applications submitted by seed producers who have been registered and received recommendations as seed producers who produce Bina Seeds and have not yet implemented a quality management system (Sisay *et al.*, 2017). Bina Seeds that meet the certification requirements and are declared passed, will be issued a Bina Seed certificate. The certificate is given according to quality standards for Bina Seed class that can be met. For the certification process, it is technically carried out by an Agency appointed by the government (Agemas and Wondimageghu, 2020).

According to Sisay *et al.*, (2017), In summary, the process can be described in a process chart in the following figure:

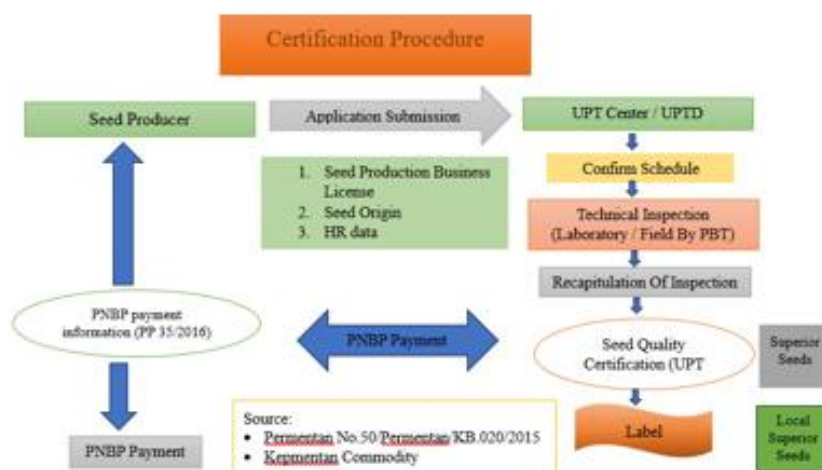


Figure 1: Seed Certification and Label Process Chart

Seed certification benefits agricultural development because effective seed certification systems and programs make quality seed available to farmers. Seed merchants benefit because certified seed is an authentic and high quality source of seed supply. Seed producers benefit because seed certification allows for a rigorous quality control program that ensures that the certified seed they purchase has the desired varietal characteristics.

In summary, the objectives of seed certification are:

- a) maintaining varietal purity
- b) maintaining seed quality
- c) providing assurance to seed users; and
- d) provide legality to producers

According to McGuire and Sperling (2016), The following is a picture of the plantation seed certification procedure before the research :

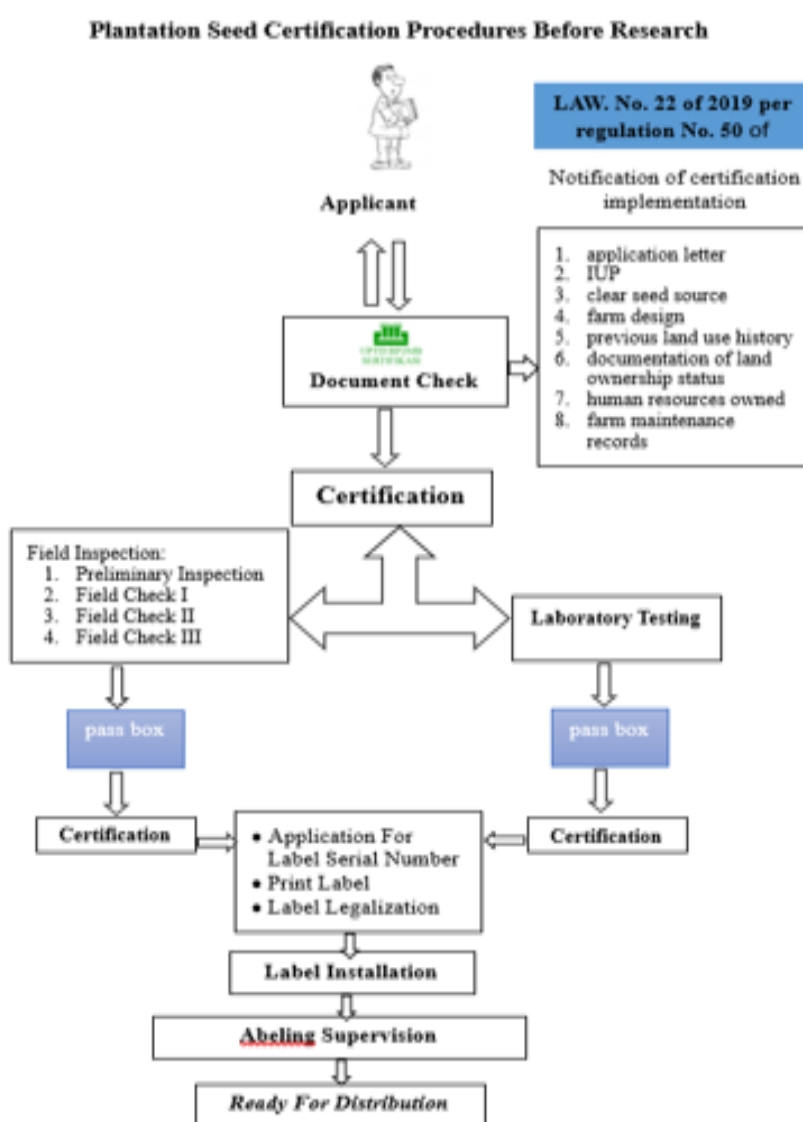


Figure 2. Seed Certification Procedure Before Research

According to McGuire and Sperling (2016), The following is a picture of the plantation seed certification procedure after the research.

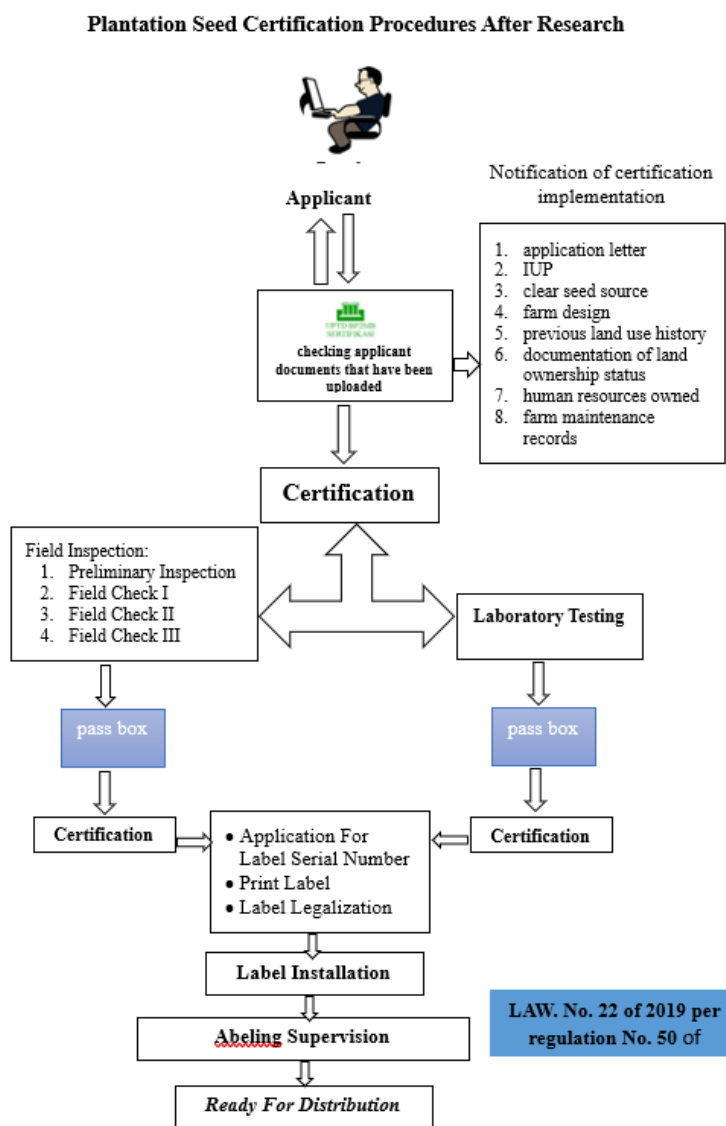


Figure 3. Framework Of the Development Model for Online Certification of Plantation Crops

METHODOLOGY

a. Type of Research

This research uses a qualitative research method approach. define qualitative research as a research procedure that produces descriptive data in the form of written or spoken words from people and behaviors observed from the phenomena that occur (Thanh *et al.*, 2015). this research is focused on the development model of plantation crop certification in Lampung province so that it can be implemented in Lampung province so that it can be effective and efficient then this research is also focused on factors that hinder the implementation of the development model for the implementation of plantation crop certification in Lampung province.

The descriptive approach is expected to be able to produce an in-depth description of the speech, writing, and or observable behavior of an individual, group, community, and or certain organizations in a certain context setting that is studied from a whole, comprehensive, and holistic perspective. Descriptive research aims to gain a general understanding of social reality from the perspective of participants employ (Bradshaw *et al.*, 2017). This understanding is not determined in advance, but is obtained after analyzing the social reality that is the focus of the research. Based on this analysis, conclusions will be drawn in the form of an abstract general understanding of reality.

b. Type And Source of Data

The data used in this study are primary and secondary data where primary data is data obtained directly through interviews with informants. secondary data is the subject from which data can be obtained. In identifying data sources, researchers have used the 3P formula, namely person, paper, and place.

The determination of informants in this study is based on the assumption that informants can provide the information desired by the research in accordance with the research problem. the informants in this study are described in the table as follows:

Table 2. Research Informants

No	Name	Informant Description	Substance
1	Mr. Yoni	information technology expert	Information on the mechanism of developing manual certification to online certification
2	Mrs. Sri Wahyuni	PBT UPTD BP2MB	Information on the mechanism for implementing certification of plantation crops in Lampung Province
3	Mr. Sanusi	PBT UPTD BP2MB	Information on the mechanism for implementing certification of plantation crops in Lampung Province
4	Mr. Hendri	breeder business	Information on the process of applying for plant certification
	Mr. Saefudin	breeder business	Information on the process of applying for plant certification
6	Mr. Bukhori	use of certification	Information on the process of applying for plant certification

Source: Processed Data, 2022

According Prasetyo *et al.*, (2021), informants must have several criteria to consider, namely:

- a) Subjects who have been long and intensively integrated into an activity or field of activity that is the target or concern of research and this is the subject of research. This is usually characterized by the ability to provide information.
- b) The subject is still fully involved and active in the environment and activities that occur in the object of research.
- c) The subject has enough times while we need information
- d) The subject provides real and objective information.

c. Analysis data Technique

Data analysis in qualitative research occurs concurrently with collecting data or after a specified period. The researcher analyzes informant's answers during the interview. If the analyzed answer is unsatisfactory, the researcher continues to ask questions until saturation is reached. The activities of qualitative data analysis, namely:

a) Reduction data

Data reduction is defined as the process of selecting, separating, paying attention to simplifying, abstracting, and transforming rough data that emerges from written field notes. The data obtained in the field will be poured in the form of a complete and detailed description.

b) Presentation of data

Presentation of data is carried out with the aim of making it easier for research to see the overall picture or certain parts of the research. Presentation of data is done by describing the results of interviews which are poured in the form of descriptions with narrative text, and supported by documents, as well as photographs and similar images to make a conclusion.

c) Drawing conclusions

Drawing conclusions is to verify continuously throughout the research process, namely during the data collection process data collection process. Researchers try to analyze and look for patterns, themes, relationships, similarities, things that often arise, hypotheses and so on. which is outlined in a tentative conclusion.

d. Data Validation Techniques

Data validity is an important concept that is updated from the concept of validity over reliability. The degree of trust or truth of an assessment will be determined by what standards are used. In this study, a transfer is carried out by searching and collecting empirical event data in the same context regarding how the development model for the implementation of plantation crop certification in Lampung Province can be implemented more effectively and efficiently and knowing the factors that hinder the implementation of the development model for the implementation of plantation crop certification in Lampung Province. In carrying out this transferability, researchers always discuss the results in the field with the supervisory team regarding the data obtained in the field starting from the research process to the level of truth of the data obtained. data obtained.

RESULT AND DISCUSSION

a. Development Model for Implementing Plantation Plant Certification Online in Lampung Province

a) Stages of Examination of Applicant's Documents

This certification application procedure is a process where an application letter is submitted. The procedure of this certification application involves 5 entities, namely Business Actors, Administrative Officers, Head of the Center, Head of the Certification Section and Plant Seed Supervisors (PBT) officers.

Business actors submit application letter along with the General Requirements and Technical Requirements. The general requirements are: a) Have a TRUP (Plantation Business Registration Mark), b) Include invoices for the purchase of seed origin c) Have land controlled to produce seeds d) Available seed processing and storage facilities, e) Have human resources who master / have technical capabilities of plant seeds.

1. The administrative officer receives the application letter and general requirements and technical requirements. The Administration Officer checks the general requirements of the Technical Requirements, if the general and technical requirements are incomplete, it will be returned to the applicant and if complete, it will be used as an archive for reference in the seed / seedling certification process.
2. The head of the center receives a request letter from the Administration officer, and gives a disposition card to the head of the Certification section to review and make a schedule for conducting field inspection or testing.
3. The section head receives the application letter along with the disposition card from the head of the center, the section head reviews the application letter, then makes a schedule for conducting the field inspection. The application letter and disposition card are returned to the administrative officer while the schedule that has been made is used as a reference for making a task letter for the implementation of field inspection / testing for PBT officers. After making the assignment letter, the schedule for conducting field inspection/testing is given to the Administration officer, which will be used as a reference for confirming the schedule for conducting field inspection/testing.
4. Assignment letter is given to the officer (Plant Seed Officer).
5. Application letter and disposition card that have been given by the section head are then archived.
6. The schedule for the implementation of field inspection/testing is duplicated to be given to the applicant as confirmation of the implementation of the schedule for the implementation of field inspection/testing, while the original is archived.

Based on the results of research through interviews with informants, it is concluded that the development model of the plantation commodity seed certification process at the stage of examining applicant documents can be done online, especially for registration and file submission. The advantage of developing an online system is time and cost efficient where the process is faster when there is an incoming application can be immediately verified and when there are missing documents can be directly confirmed and can immediately upload the shortcomings. However, it is still necessary to conduct an evaluation by considering what can be done online and which stages continue to use the conventional system and socialization needs to be carried out to the community or applicant business unit so that there is a change.

b) Field Inspection Stage

Field inspection is carried out on documents, plants, and equipment by officers. Meanwhile, seed testing in the laboratory is part of the procedures and requirements for seed certification. Seed certification activities supported by seed quality testing are one way of quality control. Laboratories play a major role in presenting precise, accurate, and irrefutable test results both scientifically and legally. Field inspection procedures are carried out on the seeds to be tested with the following testing process:

1. The officer arrives at the field with an assignment letter and hands it over to the breeder for verification. If the letter is suitable, seed inspection/testing will take place; if not, the officer will return to the Center to confirm the appropriate letter of assignment.
2. The officer performs an administrative check to verify the presence of documents or letters of origin for seeds, such as genetic certificates, purchase invoices, and other relevant records.
3. The officer inspects the usual seedlings in accordance with the Standard Operating Procedure (SOP), which entails measuring seedling height, counting leaf number, evaluating leaf color, measuring leaf and stem diameter, and assessing seedling health.
4. After completing the administrative and technical checks, the findings are documented on the seedling field inspection document.
5. Officer signs the field inspection form
6. Farmer signs the field inspection form

The procedure for calculating seed/seedling data is carried out based on the results obtained from field inspection, while the calculation process itself is as follows:

1. The data obtained from the inspection results from the field is then calculated the total number of seeds by the officer manually using a calculator.
2. The officer calculates the average of all data on the seedling or seedling behavior.
3. The officer records the data from the calculation results
4. The calculation data obtained will result in a decision on the results of the field inspection.
5. The calculation data obtained is then entered into Microsoft Office Excel

Based on the research results through interviews with informants, it is concluded that the development model of the plantation commodity seed certification process at the applicant's document examination stage can be done online, especially for registration and file submission. The advantage of developing an online system is time and cost efficiency where the process is faster when there is an incoming application that can be directly verified and when there are missing documents that can be directly confirmed and can immediately upload the shortcomings. However, it is still necessary to evaluate by considering what can be done online and which stages continue to use the conventional system and it is necessary to socialize to the community or applicant business unit so that there is a change.

c) Supervision of Labeling and Seed Distribution

The procedure for making and submitting certificates is carried out after calculating the data from the field inspection results, after obtaining the results of the field inspection, the officer then makes a quality certificate of plantation crop seeds, the process of making and submitting itself is as follows:

The data obtained from the calculation of the results of the field inspection will then serve as a reference for the preparation of the Certificate.

1. After the Certificate is made, it is signed by the head of the Certification section.
2. After being signed by the Certification Section the certificate is then signed by the head of the center.
3. The certificate is then handed back to the PBT Officer, then the Certificate is handed over to the Farmer as the Applicant for certification.

Labeling by seed producers using serial numbers is done by the local seed institute/ UPTD. To obtain the number of the label, the producer first submits an application by attaching the required number of certificate labels, test number, seed group number, type, variety, number of containers, net weight of each container, name and address of the producer. After obtaining the label, the label is installed independently by the seed producer but still under the supervision of the local Institute/ UPTD. Meanwhile, the seed circulation supervision activities carried out by Plant Seed Supervisors (PBT) are intended to ensure that the seeds circulated are quality seeds marked by the labels accompanying the seeds. In addition, it is also intended to determine the distribution and procurement of seeds that occur in seed dealers within a certain period of time.

Based on the results of the research through interviews with informants, it is concluded that the development model of the plantation commodity seed certification process at the stage of supervision of labeling and distribution of seeds in terms of the process of supervision of seed circulation is more efficiently done conventionally, but it is possible in the future to be done online.

b. Factors That Obstacle the Development Model for Implementing Plantation Plant Certification Online in Lampung Province

a) Limited Apparatus Human Resources

In fact, the resources of supporting apparatus in developing the implementation of plantation crop certification in Lampung Province at this time, if it had to be done fully online, could not be carried out. With a total of 15 personnel with quite heavy duties and responsibilities, coupled with online system management, from an educational qualification there is no degree in informatics engineering, this is quite difficult to fully realize.

Requires human resources with adequate mastery of knowledge and techniques, especially those managing applications, must be prepared for obstacles and all possibilities that occur in

the system, then the problem of uneven networks is also a problem in the field. The obstacle in the implementation stage of making applications is the lack of human resources for making applications, not all third parties are able to make applications properly, other recommendations are needed to be truly professional.

Based on the information from the results of the research above, the obstacle in implementing the online plantation commodity seed certification process development model is the lack of human resources and HR qualifications that are not yet available at UPTD BP2MB Lampung Province.

b) Locations That Are Not Covered by The Internet Network

There are 749 villages in Lampung that have no internet signal or blank spots. This is due to the construction of internet network infrastructure, which is blocked by hills or mountains spread across 13 regencies/cities in Lampung. Blank spots also occur due to geographical conditions in Lampung, making it difficult to build internet network infrastructure and broadcast internet networks. Currently the government is trying, so that these villages can be accessed signal network soon.

Out of a total of 749 villages that have not been touched by an internet signal network, North Lampung has the most blank spots with a total of 133 villages. Then Way Kanan 85 villages, East Lampung 82 villages, West Coast 73 villages, Central Lampung 55 villages, and South Lampung 55 villages. Then West Lampung 36 villages, Tanggamus 34 villages, Pringsewu 22 villages, Mesuji 33 villages, Pesawaran 42 villages, and Tulang Bawang 74 villages. In addition to the 749 villages that are constrained by the internet network, there are also 431 villages that have not yet reached a mobile phone signal. (lampungpro.co/23 accessed on 9 August 2022). Based on the information from the interview results above, the obstacle in implementing the online plantation commodity seed certification development model is a location that is not accessible by the internet network in some areas in Lampung Province.

c) Lack of Understanding of Breeder Business Actors in Using Computers and the Internet

The majority of farmers in Lampung Province belong to the 35-54 age group with 351,946 farmers (BPS Province of Lampung, 2018). As many as 62 percent of farmers have a land area of less than 2 hectares. The main challenge related to digital transformation in the plantation sector is that the majority of farmers, especially in Lampung Province, do not have higher education, which results in very low farmer control over operations and technology development.

According to the results of the 2018 Inter-Census Agricultural Survey (SUTAS) in Lampung Province, the majority of farmers with the last education level were elementary school and did not finish elementary school. A total of 104,441 thousand farmers had elementary school education and around 86,388 thousand did not complete basic education. Furthermore, only 30,649 thousand farmers were able to complete high school education.

The main requirement for digital transformation is the concentration of the internet in society and how people use technology for productive activities. In the agricultural sector, internet usage is still very low. So, this is a challenge for various parties to improve internet access for farmers so that they can be exposed to technology and access the internet. The results of the 2018 Inter-Census Agricultural Survey (SUTAS) for Lampung Province show that only 222,881 thousand farmers use the internet. While the remaining approximately 1,354,983 million farmers have not used the internet.

Based on the information from the results of the interviews above, it can be concluded that one of the obstacles in implementing the development model for the online plantation commodity seed certification process is the lack of understanding of breeders in using computers and the internet.

CONCLUSION

a. Conclusions

The conclusions of this study are:

- a) The development model for implementing online plantation crop certification in Lampung Province can be carried out at the stages of applicant registration and fulfillment of certification requirements documents. Meanwhile, for the stages of field inspection, laboratory tests, supervision of labeling and distribution of goods cannot be carried out online.
- b) Factors that can hinder the development of models for implementing online plantation crop certification in Lampung Province include, a) Limited personnel resources, b) Locations that are not accessible by internet networks, and c) Lack of understanding of breeders in using computers and Internet.

b. Suggestion

From the conclusions above, the following implications can be stated:

- a) Increased commitment, participation of stakeholders and work partners at all levels of the field line area, namely at the Plantation Service as a regulator, UPTD BP2MB up to the level of business actors, by mobilizing all potential stakeholders (stakeholders) and work partners in improving development services implementation of more effective and efficient plantation crop certification by utilizing information technology.
- b) Increase the quantity of apparatus through proposed additional employees and improve the quality of apparatus through increasing competence in the field of information technology in supporting the development system for implementing online plantation crop certification
- c) Mapping the locations of breeders who are the target for the development of online plantation crop certification both from the reach of the internet network and from planned outreach activities.

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