

Socialization and Post-harvest Training of Laying Chicken Products in Bojonegoro Regency

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Abstract

Bojonegoro Regency has a very high potential for developing laying hens. This is based on the consumption needs of purebred chicken eggs, most of which are imported from other cities, including from Blitar and Kediri Regencies. Efforts to increase egg production in Bojonegoro Regency need to be carried out by mobilizing farmer groups. Increasing the interest of novice farmers to raise laying hens and increasing production capacity or population for farmers who are already engaged in laying hens require encouragement from the government, private sector, and academicians. One of the causes of the low desire of farmers to raise laying hens is the fluctuation in the selling price of eggs and unproductive chickens, which are often not worth with operational costs, especially feed. It is necessary to optimize the income of laying chicken farmers so that the passion for raising livestock is needed to achieve laying chicken egg production in Bojonegoro Regency which can meet the needs of the Regency. Post-harvest management of laying hens is a solution to increase competitiveness in the sale of laying hens. Products from laying hens can be eggs and unproductive chickens. These two products can be managed through product processing to increase added value and managed in farmer groups of laying hens to achieve an integrated management of laying hens. Empowerment through this farmer groups of laying hens is expected to be able to boost the interest of farmers in laying hens so that egg production increases and the need for eggs in Bojonegoro Regency can be met independently.

Keywords: Postharvest, processing, laying hens, empowerment.

INTRODUCTION

Laying hens in Bojonegoro Regency are currently experiencing an increase due to a support program from the Bojonegoro Regency Government, in this case is the Animal Husbandry and Fisheries Agency of Bojonegoro Regency. As one of the sectors in animal husbandry, laying hens need to be developed because livestock has an important role as a provider of animal food products through the economy of rural communities (Gaina et al., 2019). The Bojonegoro Regency Government wants the development of laying hen farmers in order to increase the egg production of purebred chickens in Bojonegoro Regency, which so far has been mostly fulfilled from other regencies/cities such as Blitar, Kediri, Nganjuk, Ngawi and Malang. In 2021 the population of laying hens in Bojonegoro Regency is 107,495 with a production of 808,018 kg/year, while the need for chicken egg consumption is 6,907,483.85 kg/year, so the deficit in egg demand is 6,099,465.85 kg/year (primary data processed by the Animal Husbandry and Fisheries Agency of Bojonegoro Regency, 2022). Efforts to increase the egg production of broiler chickens are carried out by strengthening the organization of laying hens groups. A high egg production target must be balanced with a high population of laying hens and a good management system. Not infrequently socialization and related training are carried out so that farmers are more proficient in knowledge of laying hen farm management. On this occasion, the Animal Husbandry and Fisheries Agency of Bojonegoro Regency collaborated with the Polytechnic of Agriculture and Animal Husbandry Mapena (Poltana Mapena) in providing outreach related to increasing farmer interest in raising laying hens.

The increase in interest in raising laying hens is closely related to the profits obtained by farmers. Higher profits make farmers more motivated to increase their business capacity. One way to optimize profits is to maximize the post-harvest or processing of livestock products. On the other hand, laying hen farmers experience difficulties when feed prices are high and the

selling price of eggs is unpredictable. Often the price of eggs becomes a scourge because they cannot cover the capital for buying feed and broodstock. In addition, there are quite a lot of unproductive chickens that have not received the appropriate post-harvest processing to increase their economic value. To prevent losses when there is a decrease in egg prices and the economic value of unproductive laying hens has not been increased, it is necessary to change the sales pattern of the laying hen sector, post-harvest management needs to be implemented so that during certain periods that require a decrease in the selling price of raw products, farmers do not need to worry. Integrated post-harvest management needs to be carried out to generate business passion in the scope of laying hen farmers in Bojonegoro Regency.

Eggs that often experience decline need to get a touch of processing. There needs to be a technology that can preserve and increase the value of broiler chicken eggs, so that when prices drop, farmers can process and store them sparingly so they don't lose money. One method of preserving eggs is by making salted eggs because, according to Winarno and Koswara (2002), the addition of salt to foodstuffs of a certain size and amount can preserve these foodstuffs. According to Kautsar (2005), states that purebred chicken eggs are easily damaged, this can occur because the egg shell is contaminated by microorganisms originating from poultry manure or from the cage to prevent damage, there must be egg treatment, one of which is the salting method. . Through an integrated post-harvest management program, farmers are invited to apply science and technology from egg processing to the processing of abandoned brood hen carcasses. Service activities are carried out by providing socialization and training to groups of laying hen farmers. This is done to trigger the enthusiasm and motivation of the farmers in accordance with the report by Sahoo and Mishra (2019) which states that training is a vehicle to trigger morale and effectiveness of employers and employees. Through this method it is hoped that there will be an increase in income in laying hen households so that interest in raising laying hens in Bojonegoro Regency can increase.

METHOD

Service activities are carried out through training, outreach, and assistance to groups of laying hen farmers in Bojonegoro Regency who are fostered by the Animal Husbandry and Fisheries Agency of Bojonegoro Regency and Polytechnic of Agriculture and Animal Science Mapena. The location of the activity was carried out in the District of Bojonegoro with participants coming from laying hen farmers in the Districts of Kanor, Sumberrejo, Balen, Kapas, Trucuk, Sukosewu, and Dander. The training was carried out by starting the process of observing the participants. The observation phase was carried out by conducting a direct survey of potential participants by officers from the Animal Husbandry and Fisheries Agency of Bojonegoro Regency so that the training provided was right on target. At the observation stage, data were collected on business activities that had not been applied to laying hens. Furthermore, observations were made during the pre-training by giving pretest questions. Then carried out training and socialization activities by applying participatory techniques to lectures and discussions. After the training activities were completed, a posttest was carried out to determine the achievement of the information provided to all participants.

RESULTS And DISCUSSIONS

The number of laying hens in Bojonegoro is still relatively small. The need for eggs in Bojonegoro Regency still cannot be met from production within the Regency. To increase the livestock population, it is necessary to increase the interest of farmers in raising laying hens. In order to increase interest in raising laying hens, it is necessary to know the farmer's profile as an initial observation capital in determining the service activities to be carried out. The following is a profile of laying hens in Bojonegoro Regency.

Table 1. Profile of laying hen farmers in Bojonegoro Regency participating in community service activities

Farmers Profile	n	%
<i>Gender</i>		
Male	37	90%
Female	4	10%
<i>Age (years)</i>		
< 30	8	20%
30 – 55	28	68%
> 55	5	12%
<i>Educational background</i>		
No school	2	5%
Elementary School	2	5%
Junior High School	5	12%
Farmers Profile	n	%
Senior High School	25	61%
Diploma	2	5%
Bachelor	5	12%
<i>duration to be a farmer (years)</i>		
< 5	22	54%
5 – 10	14	34%
> 10	5	12%
<i>Laying hens population</i>		
< 1000	23	56%
1000 – 5000	17	41%
> 5000	1	29%

Note: n= number of samples

Source: processed primary data

Based on Table 1, the profile of the laying hen farmers participating in the activity, male farmers still dominate 90% of the total farmers. This shows that gender is still the dominant and exclusive thing in the development of livestock business, especially in this case, laying hens. In addition, the indication that men are the backbone of the family and at the same time the head of the family makes men the main actors in animal husbandry activities as a business sector. The small number of women who are the main actors in animal husbandry can occur because the livestock business is only used as a side business, while the male partners already have jobs in other fields. In addition, women who raise livestock also occur because as a result they do not have a male partner so that women must become the backbone of the family. While the dominating age as laying hens is 68% at the age of 30-55 years, age less than 30 years is only 20%, indicating that the youth's interest in raising livestock is still quite low. The rest are farmers aged over 55 years which usually consist of retired farmers. Based on Alma's (2010) report in general, entrepreneurs aged 22-55 years, starting a business outside this business may cause lack of experience and delays in moving forward. In addition, Padmowiharjo (1994) also reported that at the age of 55-60 years, the ability to learn and experience decreases. Therefore, age is an important factor for the competence and performance of laying hens.



Figure 1. Socialization and training to the laying hen farmers

Based on educational background, 61% of laying hen farmers came from high school/equivalent education level. This shows that laying hen farmers are classified as coming from quite well-educated circles. As a laying hen farmer, you need special skills to run your business well. In addition, human resources (HR) are also needed to trigger work values that are the same as the company or by identifying themselves with company values in order to have a commitment to the company's progress and want to start a business (Apriwandi et al., 2021). Laying hen farms have a variety of specific methods in preparing and providing feed, cage management, and cage business management. This requires farmers to be able to easily learn from other people's experiences or by learning independently so that education is very important as a basic capital to be able to think critically and simple analytically. As much as 54% of farmers are still less than 5 years old in raising laying hens, this shows that laying hens in Bojonegoro Regency are still dominated by novice farmers. Farmers who have raised livestock for more than 5 years are only about 46%. Whereas 56% of the laying hen population owned by each entrepreneur is still less than 1000 heads, so this makes egg production in Bojonegoro Regency still low and lacking. The supply of purebred chicken eggs still has to be imported from Blitar and Kediri Regencies as the biggest suppliers to Bojonegoro Regency. Increasing the productivity of a laying hen business requires increasing one's entrepreneurial skills/competencies (Salman and Badr, 2011). To improve this, socialization and training are carried out.



Figure 2. Taking photo together after socialization and training

Figures 1 and 2 are training activities conducted at the Animal Husbandry and Fisheries Agency of Bojonegoro Meeting Building. Participants attended as many as 25 people who came from representatives of several sub-districts. Socialization and training activities are carried out to provide new knowledge related to postharvest management to farmers. This is in accordance with the results of the report by Detha et al. (2020) that education and training activities have had a significant impact on increasing community understanding regarding animal feed

production and waste management in Nggorang Village. All training participants will take part in the pretest and posttest activities presented in tables 2 and 3 as follows.

Table 2. Pretest data of participants in socialization and post-harvest training of laying hens

Message	Answer		
	Yes	No	
1 Knowledge related to postharvest/processing of laying hens	11	14	
2 Urgency/importance level of post-harvest laying hens	10	15	
3 Has implemented postharvest/processing of livestock products	0	25	
4 Knowing that salted eggs can be made from laying hen eggs	5	20	
5 Know how to make salted eggs	10	15	
6 Knowing that salted eggs can be made with salt water only	5	20	
7 Know about NKV certification	3	22	
8 NKV's ownership on laying hen business	0	25	
9 Plan to apply for NKV certificate for your business	2	23	
10 Postharvest application plan for laying hens	15	10	
11 Knowing the type of processing of unproductive laying hens	10	15	
12 Know the types of commercial cuts of chicken meat	0	25	
13 Know the chicken filet	3	22	
14 Knowing about frozen food	5	20	
	Total	79	271
	Percentage (%)	22,57	77,43
	Number of respondents		25

Note: NKV= *Nomor Kontrol Veteriner* (Veterinary Control Number)

Based on table 1, knowledge and application of post-harvest activities or production of laying hens by farmers is still very low, namely 22.57%. This percentage is the total number of respondents who answered "Yes" to questions related to knowledge and the extent to which it is applied in the ongoing laying hen business. Based on these results, it is necessary to carry out socialization and training regarding post-harvest and processing of laying hen products starting from processing egg products to unproductive chickens. Post-harvest and processing of livestock products aims to optimize income and increase sales value. By processing, farmers do not need to worry if the price of eggs or the price of unproductive live chickens experiences a very large decrease. Based on the data, the need for eggs is indeed very high, but often a significant drop in the price of eggs makes farmers unable to make a profit. Because the sales of eggs are not comparable to the very high feed prices and tend to continue to experience price increases. It is hoped that this socialization will increase the knowledge of laying hen farmers about post-harvest so that farmers can apply it to their laying hen farms.

Table 3. Posttest data of participants in the socialization and postharvest training of laying hens

Message	Answer	
	Yes	No
1 Knowledge related to postharvest/processing of laying hens	25	0
2 Urgency/importance level of post-harvest laying hens	23	2
3 Has implemented postharvest/processing of livestock products	0	25
4 Knowing that salted eggs can be made from laying hen eggs	25	0
5 Know how to make salted eggs	25	0
6 Knowing that salted eggs can be made with salt water only	25	0
7 Know about NKV certification	24	1
8 NKV's ownership on laying hen business	0	25
9 Plan to apply for NKV certificate for your business	20	5
10 Postharvest application plan for laying hens	20	5
11 Knowing the type of processing of unproductive laying hens	25	0
12 Know the types of commercial cuts of chicken meat	24	1
13 Know the chicken filet	25	0
14 Knowing about frozen food	25	0

Total	286	64
Percentage (%)	81,71	18,29
Number of respondents	25	

Note: NKV= *Nomor Kontrol Veteriner* (Veterinary Control Number)

Based on table 3, posttest results on postharvest socialization and training activities of laying hens to farmers resulted in a number of increases in knowledge. After the training process, the total percentage of participants who answered "Yes" to questions about the knowledge and motivation of farmers in post-harvest implementation and processing of laying hens' products has increased. After socialization and training activities, the total percentage that answered "Yes" was 81.71%. This shows that apart from providing new knowledge, outreach and training also motivates farmers to want to implement post-harvest management and product processing of laying hens in an integrated manner. Furthermore, so that the knowledge that has been obtained by residents can be applied properly, it is necessary to carry out ongoing assistance by paying attention to each post-harvest processing management carried out by groups of laying hen farmers in Bojonegoro Regency. Several previous research reports stated that increasing the added value of livestock products can be done by processing, this is like what was done in the processing of salted eggs in Sicincin, Padang Pariaman (Novia et al., 2018). Regarding to the questions, NKV is one of certificate that very important for farmers and animal products business. Thus, government supports is very important, it is in line with Aisyah et al. (2022) that support from relevant regional and provincial government agencies is needed to strengthen the development of this household business in the future so that it can obtain certainty of wider market absorption, such as training certificates needed to obtain PIRT permits, not to mention trademark registration, and access to capital. The following in Figure 3 shows the concept map of postharvest management and processing of laying hens in detail.

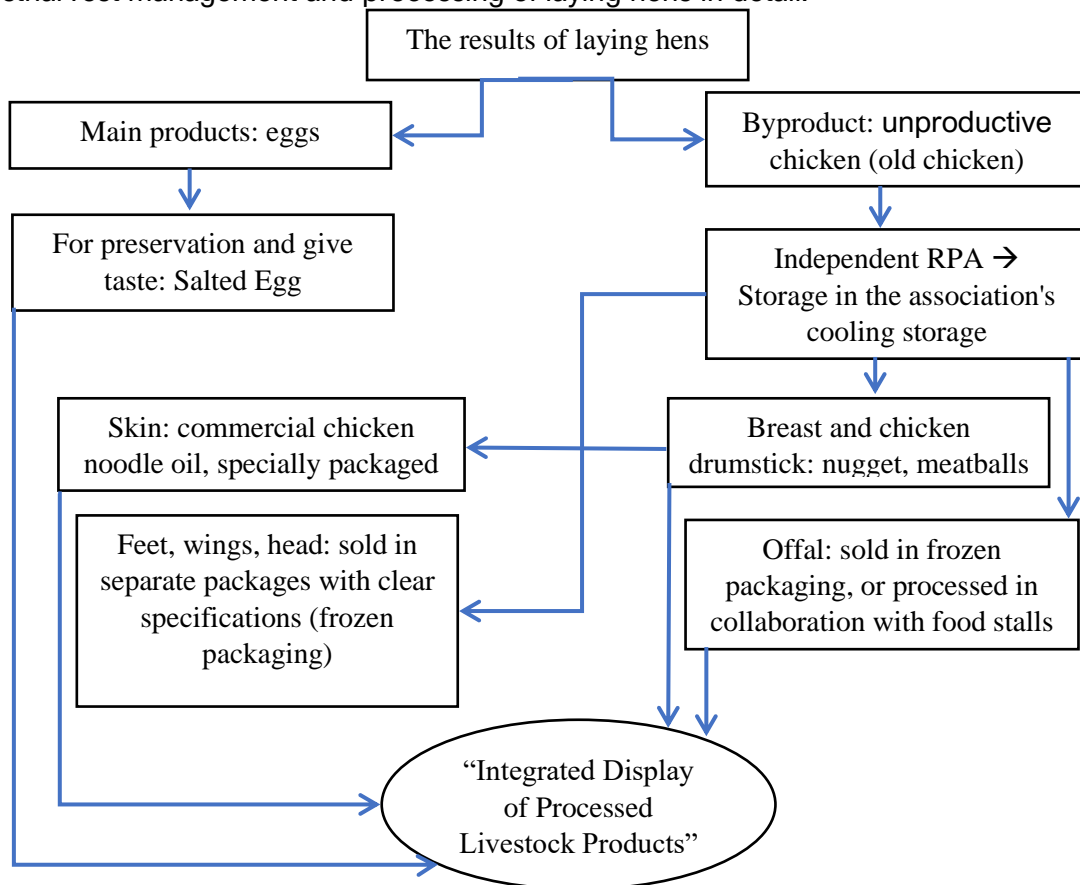


Figure 3. Map of postharvest management and processing of laying hens
 Note: RPA= Rumah Potong Ayam (Chicken Abattoir).

Based on figure 3, postharvest management will be more optimal if it is carried out in farmer groups. Farmer groups carry out integrated management so that an integrated display of processed products from laying hens can be carried out. Integrated management also aims to carry out one-door marketing so that livestock will be more sovereign and competitive. It is recommended for livestock groups to set up chilling rooms or cooling storage rooms so that commercial carcasses or meat cuts from group RPA can be accommodated immediately. Thus, farmers do not need to worry when the selling price of unproductive chicken meat is less profitable. Another way to keep chicken meat fresh in more shelf life is using Plantaricin IIA-1A5 as biopreservative, this is as reported by Siswara et al. (2019) that chicken drumstick was applied with Plantaricin IIA-1A5 is better than control. But this method still need more research to get more economically biopreservative. Integration management of post-harvest concept allows farmer groups to carry out sales management according to the wishes of the group in order to achieve optimal profits. In addition to nuggets, unproductive laying hens are also suitable for meatballs. Based on report of Siswara et al. (2022), in Indonesia there is some beef meatballs that changed with chicken meat by intentional or unintentional. Thus, the meatball shops should provide correct label based on the meat that used for its meatballs. This is because consumers also like to eat chicken meatballs as well.

CONCLUSIONS And RECOMMENDATIONS

Post-harvest socialization and training or processing of laying hens is needed to optimize the income of laying hen farmers in Bojonegoro Regency. Post-harvest or product processing helps improve the competitiveness of laying hens' livestock products. Carrying out good post-harvest management and product processing can improve farmer resilience, especially to deal with fluctuations in the selling price of eggs and unproductive chickens that are declining while operational costs continue to increase.

The application of an integrated chicken livestock product processing system needs to strengthen institutions in laying hen farmer groups. Integrated marketing of livestock products will create a better sales economic climate. It is necessary to cooperate with the private sector and the government to procure a cooling storage room to accommodate the processed meat or carcass of culled laying hens. This will make the farmer get more profit from the addition of selling value of unproductive laying hens after processing. The concept map for processing laying hens in an integrated manner in this article can be realized by good cooperation and forming a solid and compact group of laying hen farmers.

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