

Analysis of asrys hydrofarm agrosystem problems

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Abstract. This research has been carried out in Makassar City with a case agrosystem namely Asrys Hydrofarm Hydroponic Business. This study aims to analyze the problems of the case agrosystem. Data and information obtained in this study were processed using the APPAS (Agrosystem Development Planning Analysis) method. The APPAS thinking method is a learning method that directs to know the sides of deep problems related to the case agrosystem which is used as the object of research and also directs to analyze the solutions and actions that must be taken for the development of the case agrosystem. The analysis shows that the Asrys Hydrofarm business has a major problem which is the limited marketing area. This main problem is caused by a lack of promotion, uncertain working time, lack of focus labor, low production and not using superior seeds. This causes limited market segmentation and low sales volume.

6 Introduction

Food needs for humans such as vegetables and fruits are increasing along with the development of the population. But this is not accompanied by the growth of agricultural land which is increasingly narrow [1]. Vegetables are agricultural commodities which are grouped in horticulture groups along with fruit, biopharma, and ornamental plants

Agribusiness has become a thriving business industry today. The success of this business is not only focused on production management but also on marketing management. Although there are still many agricultural products produced with quality do not meet the expected standards developed with conventional agriculture. Logically, vegetable products with better quality and continuity can be marketed at a higher price, so that higher production costs can be covered by a better level of selling prices. But there are important things to consider, the relationship between quality and price is also greatly influenced by the ability of consumers to pay higher for better quality products and services that accompany the product. The greater the willingness of consumers to pay more, the more opportunities to market good quality vegetables at higher prices [2]. One way to produce vegetables to produce good quality vegetables is by cultivating hydroponics [3].

Hydroponics is agricultural land without the use of soil media, so hydroponics is an agricultural activity carried out using water as a medium to replace soil. So that the hydroponic farming system can utilize narrow land. Agriculture using the hydroponic system does not require a large amount of land for its implementation, but in the hydroponic farming business it is only worth considering it can be done in the yard, the roof of the house, or another land [1]. Hydroponics opens up the potential for growing crops under all environmental conditions including in the home or backyard [4]. Hydroponics does not require a large amount of land and land, thus adding convenience for beginners who want to



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apply hydroponics in the yard. Not only that but planting in a hydroponic manner can also make it easier for us to produce vegetables that have high value in the yard [5].

The benefits of hydroponics over soil culture are great, increased demand for food production has to focus on more efficient methods of water usage, less dependence on toxic pesticides, higher yields, and superior quality of production in both flavor and nutrition [4]. A hydroponic growing system uses minimal amounts of water because of the use of recirculation pumps and filters that control and purify the substrate water. Plants are placed in nutrient-enriched water [6].

Running a business is certainly not free from problems, various obstacles must be faced. Constraints can arise from external factors as well as from internal factors. External factors that are particular obstacles in hydroponic farming are the weather and climate change [7].

Problem analysis (problematization) is carried out to identify the problems faced, analyze the causal relationship of the problems faced by the case agrosystem and the causal relationship of these problems will later be described in a problem tree diagram. The results of this analysis will be a reference for the preparation of transformation actions to improve company performance.

2. Methods

The study was conducted at Asrys Hydrofarm, Jalan Nipa-nipa, Antang Village, Manggala District, Makassar, South Sulawesi. The time of the study was carried out from March to May 2018. The selection of cases was carried out using the purposive method of direct appointment of the company concerned using objective and subjective considerations.

The study was conducted with an experimental study method. An experimental study method is a method that involves a person directly in various activities and events in a learning process. The application of experiential study methods will have an impact in the form of changing ways of thinking and acting[8]. The research method used in this experimental study is the Agrosystem Design and Development Analysis (APPAS) method. Specifically in the problem analysis section, the method used is the AMPAS method (Agrosystem Development Problem Analysis). The flowchart of the research method can be seen in figure 1.

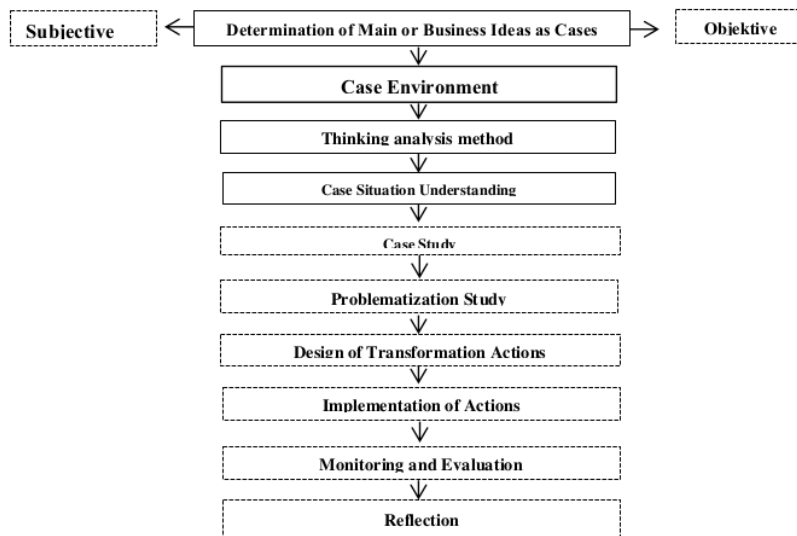


Figure 1. The chart of the APPAS method research process

Information :

- Research stages
 ---- Part of the research phase

At the problematization stage, researchers remain involved in every production activity carried out by the company while looking for problems in the effort and finding various goals in the business development effort. At this stage there are two focus analyzes, namely the analysis of business development problems to identify related problems, analyze the causal relationship of problems caused by Asrys Hydrofarm, and the causal relationship of these problems. Analysis of business development targets used to formulate goals that Asrys Hydrofarm wants to achieve. The objectives determined are the opposite of the problem or in other words that are needed as expected results that can be agreed upon.

3. Results and discussion

3.1. Agrosystem Performance Appearance Map

Agrosystem appearance map is intended to provide an overview of the allocation of resources owned by the company to various agrosystem sub-systems. Besides, the agrosystem appearance map can also describe financial flows, goods, and services as well as information in the agrosystem company environment, both between agrosystem companies and outside parties, and vice versa. For more details about the agrosystem map on the Asrys Hydrofarm business as follows:

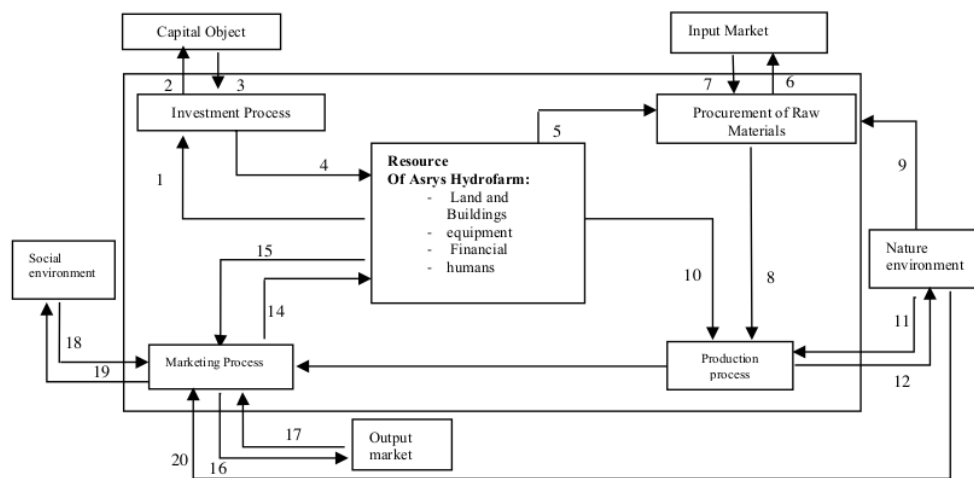


Figure 2. Agrosystem Appearance Map at Asrys Hydrofarm, Makassar, 2018.

Information:

1. All resources owned by Asrys Hydrofarm in the form of land, building, human and financial resources are allocated for the investment process in the company.
2. Resources invested by companies through the investment process are obtained by the capital market
3. Resources invested by companies through the investment process are obtained by the capital market.
4. Resources provided by the capital goods market are invested through the investment process.
5. The resources owned are used in the process of procuring Asrys Hydrofarm raw materials.

6. The process of procuring raw materials comes from the input market.
7. From the input market the company gets raw materials in the form of seeds, nutrients, and other ingredients.
8. Existing raw materials will be processed in the production process.
9. The natural environment influences the procurement of raw materials such as temperature and pH regulation by the required levels.
10. Resources in the form of equipment resources are used in the production process.
11. The natural environment influences the production process by matching the temperature and pH.
12. The production process also depends on the natural environment, in this case, is the temperature and pH.
13. Products produced from the production process will be conveyed to consumers through the marketing process.
14. Human and financial resources are used in the implementation of the marketing process and the results of the marketing process are used for the development of Asrys Hydrofarm.
15. Financial, human, and equipment resources are used for the benefit of the marketing process.
16. The company's marketing process is through the output market (in this case a restaurant) and direct consumers.
17. Seeing the market's absorption capacity of Asrys Hydrofarm products through responses from the marketing process.
18. The social environment influences the marketing process, with an appropriate social environment the marketing process is appropriate.
19. The marketing process affects the social environment, that is, people's needs for Asrys Hydrofarm.
20. The environment influences the marketing process, a good natural environment will create a greater bidding process.

3.2. Identify the Problem

A problem is something that requires someone to act fully or part of their responsibilities. The problem is the effect that can be seen from a cause, which occurred at a time in the past. We must link the consequences we observe with the real cause, and then with certainty take appropriate collective action, which is the action that can avoid the recurrence of the problem [9].

There are several problems in the course of all activities in the Asrys Hydrofarm business that can be identified based on the following gap table between facts and expectations:

Table 1. Table of Gaps in Facts and Expectations on Asrys Hydrofarm, 2018

| No. | Facts | Problems | Expectations |
|------------------------------------|---|-------------------------------|--|
| General Aspect | | | |
| Land and Building Resources | | | |
| 1. | The land and the production house building are located on Jalan Nipa-nipa, Antang, Makassar | - | Strategic land and building production houses |
| Equipment Resources | | | |
| 2. | The equipment owned is adequate | - | The equipment that is owned is used optimally |
| Human Resources | | | |
| 3. | The focus of the workforce is divided due to having another job | There is no focused workforce | A workforce that is focused by their respective roles and duties |
| 4. | Workforce motivation is quite good seen from the consistency of doing business up to now | - | Better workforce motivation in running a business |
| 5. | Working time is adjusted to the employee's free time | Erratic work time | Working time is consistent |
| Financial Resources | | | |
| 6. | Capital obtained from MSME funds private funds owners | - | Use of capital as needed |
| Marketing aspects | | | |

| | | | |
|-------------------------------------|---|----------------------------------|--|
| 7. | The marketing area in the Antang area and one of the restaurants in Alauddin | Limited marketing area | Marketed throughout the Makassar region |
| 8. | How to promote through personal selling and passivity | Lack of promotion | Promotion is intensified using social media |
| 9. | Sales volume ranges from Rp. 5,000,000 as of March 2018 | low sales volume | Sales volume increased to Rp. 1000,000 |
| 10. | Sales volume in the potential and market situation is still likely to increase seen from the increasing demand and supply and lack of competitors | - | Increase sales volume in the potential and market situation |
| 11. | Middle-up market segmentation | Market segmentation is limited | Market segmentation consists of all groups |
| 12. | The contract with the Carrefour branch undercover | Carrefour's contract has expired | Making a new contract with Carrefour branch guard |
| Production aspects | | | |
| Procurement of Raw Materials | | | |
| 13. | Use regular local seeds | Not using superior seeds | Using superior seeds |
| 14. | Auxiliary raw materials are easily available in various stores | - | Auxiliary raw materials are easily available in various stores |
| 15. | Raw materials in the form of nutrients are easily obtained | - | Raw materials in the form of nutrients are easily obtained |
| Production | | | |
| 16. | Every month there are 4 times the production and all products are sold out every month | - | Every month there are 4 times the production and all products are sold out every month |
| 17. | Production of each cycle is 256 kg/reservoir | Relatively low production | Each cycle increases the production of 300 kg/reservoir |
| Aspek Keuangan | | | |
| 18. | Asrys Hydrofarm does not feel difficulties/scarcity of cash because the capital owned comes from MSME grant funds and owner's capital | - | Do not experience cash scarcity |
| 19. | Recording financial statements is done at any time | - | Financial statements are well structured |

Based on table 1, it is known that there are problems in the case agrosystem namely there is no focus of labor, uncertain work time, limited marketing area, no contract extension with Carrefour Branch, less promotion, limited market segmentation, volume sales are relatively low, production is relatively low and not using superior seeds.

3.3. The main problem

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The sorting out of every aspect of the Asrys Hydrofarm business can be seen in Table 2:

Table 2. Problem sorting matrices on every aspect of Asrys Hydrofarm management

| No. | Description | Management Aspects | | | |
|-----|--|--------------------|-----------|------------|-----------|
| | | General | Marketing | Production | Financial |
| 1. | There Is No Workforce Focused | √ | | | |
| 2. | Uncertain Worktime | √ | | | |
| 3. | Limited Marketing Area | | √ | | |
| 4. | There is no contract extension with the Carrefour branch of Pengayoman | | √ | | |
| 5. | Lack of promotion | | √ | | |
| 6. | Market segmentation is limited | | √ | | |
| 7. | Volume Penjualan Relatif Rendah | | √ | | |
| 8. | Relatively Low Sales Volume | | | √ | |
| 9. | Not to use superior seeds | | | √ | |

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Based on table 2, it can be seen that the Asrys Hydrofarm business which is the main problem is the "Limited Marketing Area", this is caused by erratic work time and lack of production labor and is

caused by root problems, namely equipment units are still limited. So that the production process is less effective influencing the results of production and marketing.

3.4. The Tree Problem Structure

Identification of problems that have been done by the company these problems have a relationship between one problem with another, where there are problems that cause other problems or a problem that arises due to one of the previous problems. Problem structuring aims to arrange problems found in the form of problem tree diagrams to connect one problem with another problem. This tree theory is a mechanism for solving a problem by analyzing the problem into a tree structure to facilitate the search for solutions to the problem[9]. In table 2 that has been explained previously there are problems in one aspect that will affect other aspects. More details on the marketing aspects can be seen in figure 3.

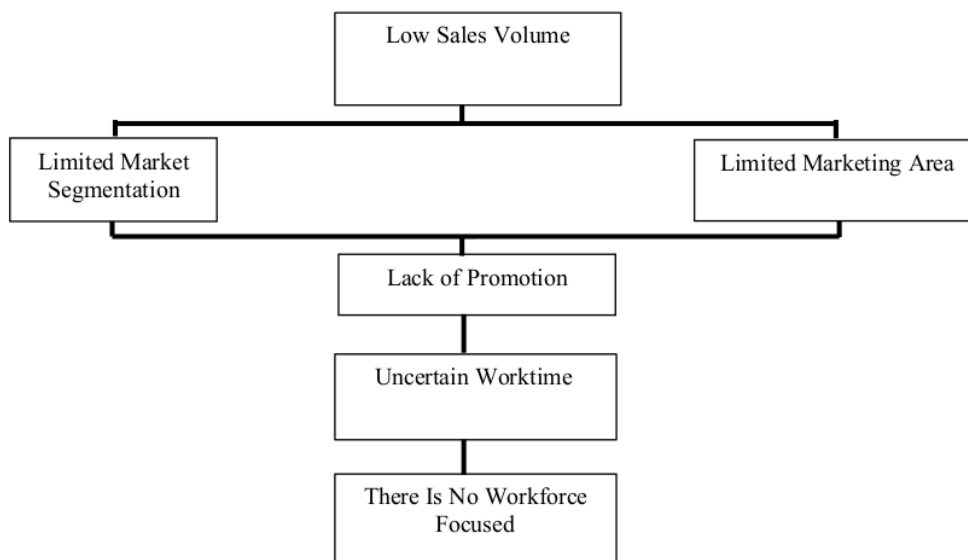


Figure 3. Tree Structure Issues Marketing Aspects of Asrys Hydrofarm's, Makassar, 2018.

As in the general aspect with the problem "there is no workforce focused", if you look back at the company's organizational structure in the marketing department all employees are also part of the marketing department. This will affect the marketing aspects. Where when there is no clear job description or no one focusing on the marketing department, what happens is that there is a mutual expectation from each other. So the tasks that should be done by employees in the marketing department are not as expected.

As for the aspects of production, we can see in figure 4:

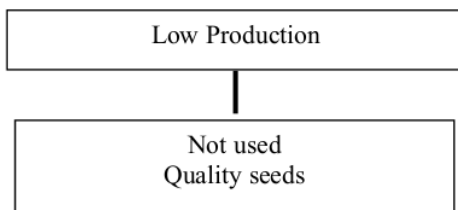


Figure 4. Tree Structure Issues Production Aspects of Asrys Hydrofarm's, 2018.

The following is a causal relationship or problem structuring in Asrys Hydrofarm which discusses Figure 4 through the problem tree diagram:

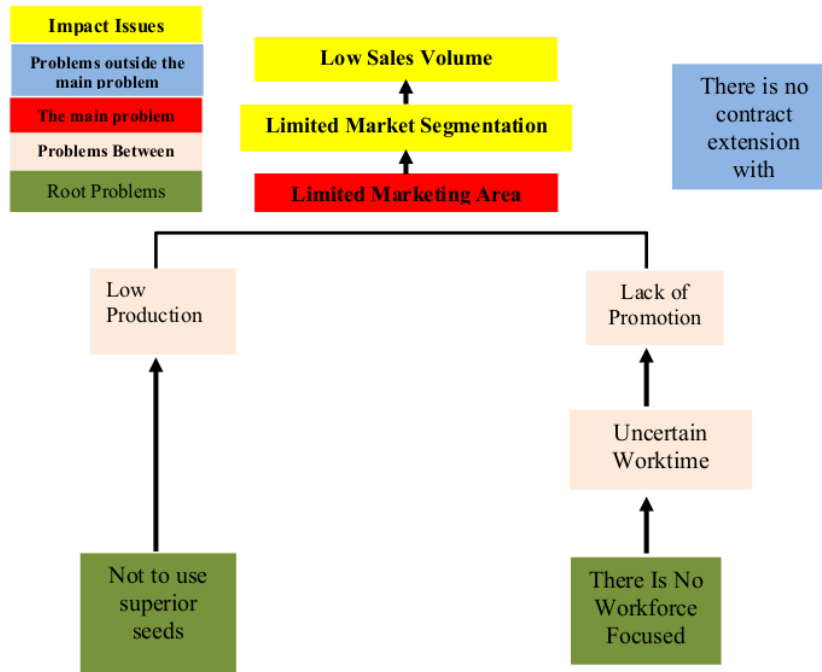


Figure 5. The Structure of the Tree of Problems of Asrys Hydrofarm's

Based on Figure 5, it is known that the main problem with Asrys Hydrofarm is the "Limited Marketing Area". The main problem is caused by two problems, namely the relatively low scale of production and the lack of promotion and is caused by the root problem, which is not using superior seeds and there is no focused labor. The challenge for marketing hydroponic vegetable products is the limited scope of product sales because hydroponic vegetables cannot be directly marketed like vegetables in general that are sold in traditional markets. Especially in open stalls. This vegetable hydroponic product is marketed in minimarkets, supermarkets, and hypermarkets. For producers, the packaging functions as a protector. Before being marketed and waiting for the distribution process, the hydroponic vegetables are stored in room temperature first. This is because vegetable hydroponic products have a high metabolic activity that can cause the product to be damaged quickly (wither) [3].

4. ¹²Conclusions

Based on the results of the analysis of the problems carried out using the AMPAS (Agrosystem Development Problem Analysis) it can be concluded that the main problem in the Asrys Hydrofarm agrosystem is a limited marketing area. These problems are caused by several problems such as relatively low production (caused by inputs that have not used superior seeds), and lack of promotion (caused by uncertain working time because there is no focused labor). The main problem is resulting in limited market segmentation so that sales decline.

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