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Clustering Approach As a Regional Development Tool

Nazan Yelkikalan*, Ergül Söylemezoğlu*, Abdullah Kiray*, Rukiye Sönmez*, Bilal Ezilmez*. Melike Altun**

*Çanakkale Onsekiz Mart Üniversitesi, Çanakkale, 17100, Turkey
**Universidad Autonoma de Barcelona, Barcelona, Spain

Abstract

Clustering is defined as geographic concentration of companies operating in the same sector as well as having a close buyer and seller relationship with other sectors in the region, using common technologies and sharing a specialized workforce pool that will be provide competitive edge. Specialized suppliers, service providers, universities and companies of the related sector such as commercial enterprises form the clusters. Clustering can occur in a region, sector and even in a country.

Turkey is a country where agriculture and livestock sectors are important. According to TÜİK (Turkish Statistics Institute) data, approximately 65% of the population is still employed by this sector. One third of the agricultural activities are based on stockbreeding. Milk yield is one of the prominent items of agricultural products and Turkey is ranked as the world's 15th country in milk yield. Although 13 million tons of milk produced in a year is not sufficient in terms of Turkey’s potential, milk yield has been increasing, developing recently and milk processing has become more sufficient.

This study reviews the milk producers located in Çanakkale Region and highlights the clustering characteristics of the sector and establishes the factors having an impact on the clustering. This study examines the clustering status of dairy producers in Çanakkale region and operating in the same sector. As clearly evidenced by the number of producing plants and animals milked as well as the total amount of milk produced, dairy producers located within the territory of Çanakkale are clustered in Biga district. The results clearly confirm that there is a clustering in that region. The number of cooperatives and cooperative partners existing in Biga as well as the total amount milk produced and sold here also support these results.

Keywords: Clustering approach, Milk Sector in Turkey

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1. Introduction

Clusters are enterprises, specialized suppliers, service providers and other related establishments of a specific sector which are associated with each other and concentrated on a certain geographical region. The clusters emerged because they improve productivity and competitive power and for the purpose of benefiting from government incentives and synergic outcomes. Today’s highly dynamic and instant business world has realized the importance productivity, innovation and competition advantages introduced by clusters. The clustering approach, based on reinforcing regional association between the enterprises as well as creating business network structures between geographically proximate parties involved in production of a product or service, is seen as a regional development model. In this context, the focus of this study is to address cooperatives and unions which have significant roles for milk production by taking into consideration the current status of milk sector, one of the most important sectors in the western regions of our country, in Çanakkale region; to analyze government promotions comparatively, milk production statistics and livestock numbers on country and province basis and to determine which region is experiencing clustering. Generally, secondary data obtained from international, national and local institutions were used on this study. Besides, the data obtained from unstructured interviews made with specialists working for related institutions and presidents of certain agricultural development cooperatives and milk producers were interpreted.

2. Literature Review

2.1. Clustering

According to Porter, industry clustering emerge from concentration of companies having vertical and horizontal dependency; for example, mutually dependent companies, specialized suppliers, service providers, companies of associated industries and supporting organizations create industry clustering. These regions start off with common points and complementary principles. Besides, the distinctive characteristics of industrial clustering are prioritised competition as well as cooperation. This trend described as co-opting rejuvenates the importance of region, in other words the inhabitation analysis, at a different level. However, as previously highlighted, this revival definitely differs from traditional feasibility studies to a great extent. Because the formation for clustering is directly correlated with concept of global competitive power (Porter, 2000). Although the regions seem to have lost their importance due to globalization, this clustering coincides with new impacts of clustering regions and complicated, dynamic economy concept that is based on knowledge. By introducing a new standpoint to nations, governments and local economies, industrial clustering imposes new roles to companies, governments and other institutions for enriching the competition power (Porter, 2000: 15-16). Michael Porter who has academically addressed concept of clustering defines clustering as follows: “Clustering is enterprises and establishments associated with each other and concentrated on a particular geographic area.

The cluster includes interconnected industries that are important for competition and other institutions. These cover suppliers specialized in components, machines and service providing and specialized infrastructure suppliers. Clusters generally expand vertically in a manner covering supply channels and customers and horizontally in a manner covering parties producing supplementary products and enterprises of industries associated with each other in terms of skills, technology or common input. Finally, clustering covers publish institutions and universities, standard-setting agencies and consultancies and specialized training, education, research institutions such as vocational training institutions and unions as well as other establishments providing information and technical support” (Porter, 1998: 78).

However, OECD, an international establishment valuing the concept of clustering, highlights the information dimension of clusters and defines a cluster as follows: “Clusters form a production network of companies, information producing agencies and clients that are strongly linked together in a chain of production ensuring added value to each other” (OECD, 1999: 157). Porter stated that clustering is a form of network structuring occurred in a certain geographical area and highlighted that geographical proximity of companies and establishments improve the opportunity of doing business together by increasing the interaction between those (Porter, 1998: 206). Generally speaking, clustering is the tendency of companies conducting similar activities for being established proximate to each other in a particular area, without any requirement to do so (Alsaç, 2010: 9-10). Within this context, we see that direct and indirect communication between companies located close to each other is improved and social relations ensuring
trust are established. In his study, Porter determined that the location of rival sectors in countries do not have a structure that is geographically distributed all around the country. Porter called this systematic he developed as “Diamond Model” (Alsac, 2010: 15). In 1990, a transformation was experienced when it defined competitiveness of sectors as Porter’s diamond model. According to this theory, the company strategy, structure and competition determine the competitive advantage. The competition in a country or region has a strong impact on the management applications, organization structures and purposes of organizations.

The diamond model which claims that countries will be successful in a sector or sector segment has four factors namely; demand conditions, input conditions, linked and supporting sectors and strategy, structure and competition of a company, and government is added as an external factor (Porter 1991). With the diamond model, Porter explains four basic factors having an impact on companies’ development of competitive edge. “Input conditions”, “demand conditions”, “company’s structure and strategy and competition states” and “linked, supporting industries” are situated on four corners of the diamond. Porter used the Diamond Model to determine which industries and sectors have competitive edge. The linked industries concept of Porter’s Diamond Model refer to the sectors commonly using existing means and resources of an industry and the concept of supporting industries refer to supplier sectors providing inputs required for production activities of a certain sector (Alsac, 2010: 17). The existence of supplier sector capable of competing at an international level influences other sectors that it is linked to in various ways. Likewise, the advantages of developed suppliers are also seen in innovative processes. The supplier companies are assisted in the direction of using new knowledge and new technologies. The suppliers also facilitate transfer of new information between companies. Such advantages are further increased when the suppliers are geographically proximate to the customer companies. When an intense and improved interaction is ensured between four elements of diamond model, the productivity and hence competitive edge of companies operating in the associated area will be improved. If the companies are geographically close to each other or clustered then the interaction in competitive Diamond Model will be more intense. As per Diamond Model’s systematic, when enterprises are concentrated on a particular location, then interaction between elements of the model will be improved and the clustering process will begin. Clustering is an outcome of Diamond Model, when applied (Porter, 1998).

When a clustering begins, the entire industry group will be mutually under the influence. The advantage will flow with forward, backward and horizontal direction and the competitive edge will be reflected on all actors in the cluster with marketing power, by-products and differentiation. Introduction of various businesses into the cluster will cause differentiated R&D approaches and improvement of the cluster with new strategies and people. Information flow and innovativeness will be accelerated thanks to supplier connections and customers in contact with more than one company. New competing opportunities will be better recognized with other connections in the cluster (Alsac 2010: 27). The national scale states that the framework of regional and spatial growth will be improved and regional development strategies and plans will be prepared in cooperation with development agencies (DPT, 2006:117). It is seen that regional development policies of the new era have two essential purposes. These are improving competitive edge of not only underdeveloped regions but also all other regions and balanced distribution of welfare across the country. Thus a more balanced regional development concept will be developed where both competitiveness and convergence can be jointly ensured (Yaman and Kara, 2008: 38).

Clustering is defined as geographic concentration of companies operating in the same sector as well as having a close buyer and seller relationship with other sectors in the region, using common technologies and sharing a specialized workforce pool that will provide competitive edge (Hill and Brennan, 2000: 68). Specialized suppliers, service providers, universities and companies of the related sector such as commercial enterprises form the clusters (Hospers et al., 2009: 287). Clustering can occur in a region, sector and even in a country. Clustering is known to be an important resource for small scaled enterprises in order to get competing power (Najib et al 2011: 56). Besides, the activities of sector companies also influence the performance of other producers in the sector within a short period of time (Feser and Bergman 2000:2). All of the government efforts for improving and supporting clustering in a certain area make up the cluster policy (Hospers et al 2009: 288). For example, determination of R&D investments for improving competitiveness, exportation policies, procedures for increasing productivity and regional development policies can be listed as cluster policies. In this study, government puts cooperatives into action for sector development.

Supply procedures can be realized via cooperatives. In practice, it is difficult to differentiate cluster policy from other economical policies (Hospers et al 2009: 289). For example, innovation is one of the important factors of
improving competitiveness in food and beverages sector (Rama 1996: 123). Advertisement, market share and variety can be listed as the main factors ensuring improvement of food and beverages sector as well as growth of companies in the sector (Haggui 1998: 109). Clustering offers the opportunity of gaining advantages as if they were large-scaled companies or companies with official connections to other enterprises, without waiving from their own flexibility, to the companies included in the clustering. Being a member of a cluster ensures more productive activities in possessing inputs, accessing to knowledge, technology and necessary establishments, coordinating associated companies and measuring growth as well as promoting (Bulu et al. 2004:3).

The connections between the companies will facilitate, accelerate business conducts of the companies and will ensure more effective use of knowledge. Clustering has three main impacts on competing power of companies included in a cluster; improves productivity and efficiency of companies, triggers and improves innovativeness, accelerates commercializing process. An approach based on clustering addresses the competing power while reviewing companies as actors interconnected with each other but not as isolated players and such an approach makes suggestions on reinforcing such connections. This approach answers questions such as inefficiency of which players at which stages have caused the high costs as a result of which political incorrectness, by supporting the outcomes with value chain analysis and the approach takes precautions for improving the capacities and performances of players in the cluster (Çağlar 2006: 309).

Clustering offers several opportunities and reduces the risk of employing personnel at different locations and even draws the talented staff in other regions. It also plays an effective role in ensuring significant inputs and has specialized supply base (Bulu et al 2004: 3). Besides, clusters offer the potential of creating innovation (Şengün and Önder 2009: 5). The cooperation realized by the companies within the cluster also has impact on the cooperation to be established in the future. The cooperative network realized by such collaborations offers competitive edge (Gimeno 2004: 820). The cooperative networks are defined as cooperation, planned and constant collaboration group based on agreements not clearly defined and not finalized (Child et al 2005: 40). Thus cooperative networks have critical importance that guides corporate behaviours (Gulati 1995: 646). The companies operating within that network should focus on creating value (Gulati et al. 2000). Furthermore, it is known that the competition between collaborators operating within company’s network increase the market performance (Lavie 2007: 1187).

Today, power of global competition and dynamism of technology forces even the most powerful organizations to collaborate in order to keep up with the competition (Madhok 1995: 133). Increasing complexity of product and services and design, production and shipment of these reveal themselves as another pressure of competition. Today, there is hardly any product or service that does not include any unique and specialized component. It is hard to make available all assets under one roof and generally, it is not a desired situation, either. Thus companies under the pressure of competition tend towards collaboration in order to manage dependency on assets and skills. Even they choose such collaborations at a more specific level in order to create it at a group level rather than the company level (Gomes-Gasseres 2003: 86).

The cooperative networks are created within clusters when collaborations at group level are combined. These networks form accumulated knowledge within the network about reliability of potential collaborators and specific skills (Gulati 1995: 619). The coordination between members establishing the network reduces the costs and is protective against use of patented assets such as technology (Child et al 2005: 41).

Besides the transactions realized between collaborators within the network will reduce transaction costs. The strategic networks established by companies offer access to resources, markets, technologies and information; ensure benefiting from advantages of learning, scale and economy of scope as well as providing means to realize strategic purposes of companies (Gulati et al., 2000).

Reliability is very important within clusters created by cooperative networks of individual companies. Reliability is creating enough trust in a collaborator although the companies take risk (for operating know-how and other resources) (Child et al 2005: 50). Trust is considered to be a necessary tool for successful collaboration (Gibbs and Humphries 2009). According to Dyer and Chu (2003: 57), trust is associated with sharing more information in relationships between the supplier and buyers and creates value by reducing transaction costs. As a governance mechanism, trust is unique and creates a causal cooperation with mutual information sharing as well as minimizing the transaction costs.
However, other governance mechanisms (such as contracts) are necessary costs for preventing profiteering but they do not create value.

2.2. Milk Sector in Turkey

Turkey is a country where agriculture and livestock sectors are important. According to TÜİK (Turkish Statistics Institute) data, approximately 65% of the population is still employed by this sector. One third of the agricultural activities are based on stockbreeding. Milk yield is one of the prominent items of agricultural products and Turkey is ranked as the world’s 15th country in milk yield. Although 13 million tons of milk produced in a year is not sufficient in terms of Turkey’s potential, milk yield has been increasing, developing recently and milk processing has become more sufficient. Total milk yield all around the world is approximately 703 million tons. The total milk yield in EU countries is approximately 135 million tons. Turkey’s position in terms of increase in milk yield, compared to the previous year, is satisfactory. The milk yield increase in Turkey was approximately 4% in 2010, when compared to 2009 and it exceeded the worldwide milk yield increase of approximately 0.5. The growth rate of dairy production was 11% and this is an indication of boom and growth in the sector (USK – National Milk Council Sector Report). On the other hand, the annual milk consumption per person is approximately 26 litres whereas the world’s average is 103. Consumption of milk and dairy products should be promoted to ensure a more productive sector and to rejuvenate the demand. The annual carbonated beverage consumption in Turkey, 31 litres per person, reveals that there is something we can do about this (ITO – Istanbul Chamber of Commerce, Carbonated Beverages Sector Study, 2004).

Total number of animals owned and number of animals milked is also an important indicator to reveal the position of milk sector. The total animal existence all around the world is as follows; 1.3 billion bovines and 1.1 billion small cattle. The total number of animals milked in the EU countries is 23.7 million. In Turkey, the total number of animals is 37.6 million and total number of animals milked is 15.4 million (TÜİK). Since 2006, Turkey has been directly exporting milk and dairy products to 94 countries and the exportation in the period of 2006-2010 has increased by 89%. In 2010, milk and dairy products exportation was 167 million dollars and increased up to 195 million dollars in 2011 (USK Sector Report). Positive impacts of the raw milk support program are reflected on the total milk yield and data. The increase in quantity of milk receiving milk support was approximately 20% whereas the increase rate in total milk was only 7%. In 2010, the number of cities receiving raw milk support over one hundred thousand tons increased by 4 in comparison to the previous year and reached up to 18 (TÜİK).

Despite these important improvements in terms of annual milk ratio and exportation, it is seen that Turkey’s milk sector has been suffering from significant problems. We have not been able to achieve the desired level in milk yield and milking. The most important factors can be listed as follows; dispersed settlement of milk producers and insufficient number of animals averagely milked in milk production facilities, majority of milk collected is not processed in modern premises but sold and consumed off the books. Besides, there are issues regarding the quality of raw milk produced. In Turkey, milk is processed and offered to the consumers in different ways. 54% of the raw milk is delivered to modern processing facilities and dairy farms whereas 35% is consumed in farms and 11% is consumed as milk sold on streets (TZOB Union of Turkish Chambers of Agriculture Assessment Report, 2008).

Actually, these particulars were mentioned in detail on the sector report presented at UN Food and Agriculture Organization meeting held in Rome in 2007 by the Ministry of Agriculture and Livestock and establishing a National Milk Council was suggested in order to solve problems brought to attention and the council was established, put into practice. USK (National Milk Council), TDSYD (Turkish Breeding Cattle Breeders Association), SETBİR (Union of Dairy, Beef, Food Industrialists and Producers of Turkey), ASÜD (Turkish Packaged Milk and Dairy Industrialists Association) are the actors supporting the sector as well as other cooperatives and unions dealing with animal breeding and milk yield, Ministries and institutions, establishments attached to the ministries (Ministry of Agriculture Rome Report, 2007).

3. Methodology

In this study, generally the secondary data obtained from international, national and local establishments were used. Some of the data were taken from institutional web sites shared in virtual platforms and some were obtained from
officials and local establishments and representatives of national institutions. Secondary data collected were tabulated according to the research structure and then interpreted. Besides the secondary data, interviews not structured to obtain detailed information about the subject were made with Provincial Food, Agriculture and Livestock Directorate of Çanakkale, Directorate of Animal Health and Breeding, veterinaries, specialists and officers working for the related institutions and presidents of some agricultural development cooperatives as well as milk producers and the opinions of those individuals were interpreted.

3.1. Findings

1. Number of Livestock in Turkey Categorized According to Breeds (Counts)

| YEAR | CATTLE | SHEEP | GOAT | WATER BUFFALO | TOTAL |
|------|--------|-------|------|---------------|-------|
| 2009 | 10 723 958 | 21 749 508 | 5 128 285 | 87.207 | 37.688.958 |
| 2010 | 11 369 800 | 23 089 691 | 6 293 233 | 84.726 | 40.837.450 |

Resource: Turkish Statistical Institute

According to Table 1, the number of bovines increased by 6 % in 2010, in comparison to the previous year whereas the number of ovine increased by 9,3 %. As of 2010 year-end, total number of bovines was 11 454 526, with a 6 % increase compared to the previous year. Cattle, classified as a bovine, increased by 6 % and reached up to 11 369 800 counts. As of 2010 year-end, the number of sheep increased by 6,2 % in comparison to the previous year with a total of 11 369 800 whereas the number of goats increased by 22,7 %, up to 6 293 233 in total.

Table 2. Number of Milked Livestock in Turkey Categorized According to Breeds (Counts)

| YEAR | CATTLE | SHEEP | GOAT | WATER BUFFALO | TOTAL |
|------|--------|-------|------|---------------|-------|
| 2009 | 4.133.148 | 9.407.866 | 1.830.814 | 32.361 | 15.404.189 |
| 2010 | 4.384.130 | 10.583.608 | 2.582.539 | 35.726 | 17.586.003 |

Resource: Turkish Statistical Institute

As seen on Table 2, the most common animal milked in Turkey is sheep. Sheep is respectively followed by cattle and goat. Water buffalo is the last breed with a relatively very low number. However, as stated on the table, the number of dairy animals of all breeds increased in comparison to the previous year.

Table 3. Milk Production around the World, in EU and Turkey

| Year | World’s Milk Production (Ton) | Milk Production in EU (Ton) | Milk Production in Turkey (Ton) |
|------|-------------------------------|-----------------------------|---------------------------------|
| 2008 | 694.235.337                   | 154.486.110                 | 12.243.040                      |
| 2009 | 696.554.346                   | 153.033.420                 | 12.542.186                      |

Resource: FAO

According to the Table 3, the milk production in Turkey corresponds to approximately 1,7 % of the worldwide production whereas approximately 7,7 % of the production in Europe. Although the worldwide production quantities and the figures in Turkey increased in comparison to the previous year, a decrease was observed in terms of production quantities in Europe.

Table 4. Milk Production Quantities of Breeds and Percent Changes

| YEAR | COW | COW MILK RATIO % | SHEEP | SHEEP MILK RATIO % | GOAT | GOAT MILK RATIO % | WATER BUFFALO | WATER BUFFALO MILK RATIO % | TOTAL |
|------|-----|-----------------|-------|-------------------|------|------------------|---------------|-----------------------------|-------|
| 2009 | 11.583.313 | 92,4 | 734.219 | 5,9 | 192.210 | 1,5 | 32.443 | 0,3 | 12.542.186 |
| 2010 | 12.418.544 | 91,7 | 816.832 | 6,0 | 272.811 | 2,0 | 35.487 | 0,3 | 13.543.674 |
According to Table 4, the quantity of cattle milk decreased in comparison to the previous year whereas the quantity of sheep and goat milks increased, the quantity of water buffalo milk remained the same. In terms of rates, goat milk has the highest increase rate by half a point difference.

Table 5. Provinces received over 100,000 tons of Raw Milk Support in 2009

| LINE | PROVINCES | IN TONS |
|------|-----------|---------|
| 1    | Balikesir | 602,213 |
| 2    | İzmir    | 522,192 |
| 3    | Konya    | 439,613 |
| 4    | Çanakkale | 294,109 |
| 5    | Burdur   | 257,505 |
| 6    | Aydın    | 244,436 |
| 7    | Denizli  | 233,139 |
| 8    | Tekirdağ | 214,998 |
| 9    | Bursa    | 209,025 |
| 10   | Edirne   | 189,451 |
| 11   | Manisa   | 171,627 |
| 12   | Kırklareli | 157,856 |
| 13   | Afyonkarahisar | 115,322 |
| 14   | Aksaray  | 105,556 |

Resource: (Gürnay, 2011).

Table 6. Provinces received over 100,000 tons of Raw Milk Support in 2010

| LINE | PROVINCES | IN TONS |
|------|-----------|---------|
| 1    | Balikesir | 693,013 |
| 2    | İzmir    | 631,188 |
| 3    | Konya    | 570,924 |
| 4    | Çanakkale | 317,549 |
| 5    | Aydın    | 299,087 |
| 6    | Burdur   | 279,349 |
| 7    | Denizli  | 275,795 |
| 8    | Bursa    | 232,627 |
| 9    | Tekirdağ | 226,322 |
| 10   | Manisa   | 221,106 |
| 11   | Edirne   | 197,749 |
| 12   | Kırklareli | 168,050 |
| 13   | Afyonkarahisar | 154,324 |
| 14   | Aksaray  | 142,792 |
| 15   | Muğla    | 119,194 |
| 16   | Uşak    | 111,614 |
| 17   | Kütahya  | 110,830 |
| 18   | Sakarya  | 101,986 |

Resource: (Gürnay, 2011).

As seen on Table 5 and 6, the number of provinces receiving incentives increased in comparison to the previous year. Muğla, Uşak, Kütahya and Sakarya were the provinces exceeding 100,000 tons of production quantity. It is seen that Çanakkale increased the production quantity receiving incentive by 8 % in comparison to the previous year.
Table 7. Livestock Counts in Districts of Çanakkale as of 2011

| DISTRICT   | CATTLE | CALF* | WATER | BUFFALO | TOTAL | SHEEP | GOAT | TOTAL |
|------------|--------|-------|-------|---------|-------|-------|------|-------|
| TOWN CENTRE | 4000   | 1500  | 0     | 5500    | 18000 | 15000 | 25000 | 43000 |
| AYVACIK    | 4800   | 1500  | 0     | 6300    | 45000 | 15000 | 60000 |
| BAYRAMIÇ  | 6400   | 1800  | 0     | 8200    | 30000 | 20000 | 50000 |
| BIGA       | 42874  | 18856 | 560   | 62290   | 38000 | 13263 | 51263 |
| BOZCAADA   | 4      | 2     | 0     | 6       | 570   | 60    | 630   |
| ÇAN        | 17125  | 9855  | 0     | 26980   | 18020 | 8400  | 26420 |
| ECEABAT    | 787    | 423   | 0     | 1210    | 6850  | 6900  | 13750 |
| EZINE      | 6853   | 3025  | 0     | 9878    | 58000 | 22000 | 80000 |
| GELIBOLU   | 6600   | 4010  | 0     | 10610   | 26350 | 28830 | 55180 |
| GOKÇE ADA  | 770    | 330   | 0     | 1100    | 40000 | 10000 | 50000 |
| LAPSEKİ    | 4674   | 2376  | 0     | 7050    | 16120 | 14230 | 30350 |
| YENİCE     | 21850  | 8080  | 0     | 29930   | 24500 | 5400  | 29900 |
| TOTAL      | 116737 | 51757 | 560   | 169054  | 32410 | 169083 | 490493 |

*Calf: Animals under the age of 1. Resource: Republic of Turkey, Ministry of Agriculture and Livestock, Çanakkale Directorate of Food, Agriculture and Livestock, Directorate of Animal Health and Breeding and Water Products

According to Table 7, Biga, by far, has the highest number of bovines in Çanakkale whereas Bozcaada has the lowest number. Ezine has the highest number of ovine whereas Bozcaada has the lowest. In all districts, cattle is the most common animal of bovine group whereas goat is the most common ovine in Town Centre, Eceabat and Gelibolu, sheep is the most common one in other districts.

Table 8. Agricultural Development Cooperatives of Çanakkale, Number of Partners, Productions

| 2011 Second Period Data | Number of Cooperatives | Number of Partners | Number of Projects | Number of Cooperatives Producing and Selling Milk | Quantity of Milk Produced and Sold in a Year |
|-------------------------|------------------------|-------------------|-------------------|-------------------------------------------------|---------------------------------------------|
| TOWN CENTRE             | 17                     | 1646              | 2                 | 9                                               | 202                                         |
| AYVACIK                 | 15                     | 1427              | 2                 | 4                                               | 90                                          |
| BAYRAMIÇ                | 27                     | 3849              | 3                 | 19                                              | 446                                         |
| BIGA                    | 77                     | 7116              | 2                 | 77                                              | 2352                                        |
| BOZCAADA                | 1                      | 241               | 0                 | 0                                               | 0                                           |
| ÇAN                     | 39                     | 2822              | 0                 | 39                                              | 932                                         |
| ECEABAT                 | 5                      | 406               | 0                 | 1                                               | 15                                          |
| EZINE                   | 12                     | 866               | 0                 | 9                                               | 169                                         |
| GELIBOLU                | 21                     | 1781              | 0                 | 21                                              | 402                                         |
| GOKÇE ADA               | 3                      | 115               | 1                 | 0                                               | 0                                           |
| LAPSEKİ                 | 27                     | 2127              | 0                 | 21                                              | 471                                         |
| YENİCE                  | 61                     | 5942              | 3                 | 55                                              | 1445                                        |
| TOTAL                   | 305                    | 28226             | 13                | 255                                             | 6524                                        |

Resource: Republic of Turkey, Ministry of Food, Agriculture and Livestock
Table 9. Agriculture and Animal Production Values of Çanakkale Province in 2009

| DISTRICTS | ANIMAL PRODUCTION |
|-----------|-------------------|
|           | MILK (TL)         | MEAT (TL) | LEATHER (TL) | WOOL (TL) | HAIR (TL) | EGG (TL) | CHICKEN MEAT (TL) | HONEY (TL) | ANIMAL PRODUCTION (TL) |
| TOWN CENTRE | 13,752.220 | 2,678.963 | 23,859 | 35,116 | 12,309 | 551,406 | 1,796,256 | 1,453,347 | 20,303,476 |
| AYVACIK | 11,767.150 | 0 | 0 | 81,997 | 9,072 | 517,522 | 3,266 | 306,775 | 12,685,782 |
| BAYRAMİÇ | 18,335,410 | 841,592 | 8,179 | 57,717 | 13,391 | 182,057 | 76,961 | 853,650 | 20,368,955 |
| BIGA | 92,501,410 | 55,434,551 | 503,077 | 59,557 | 6,187 | 2,367,396 | 8,358,469 | 1,110,200 | 160,340,846 |
| BADA | 30,560 | 0 | 0 | 688 | 192 | 0 | 0 | 28,420 | 59,859 |
| ÇAN | 44,579,330 | 1,656,070 | 13,219 | 36,446 | 7,024 | 836,350 | 75,600 | 821,800 | 48,025,839 |
| ECEABAT | 2,212,780 | 61,775 | 471 | 11,182 | 2,925 | 190,629 | 347,060 | 2,826,822 |
| EZONE | 14,453,840 | 1,244,240 | 9,095 | 98,577 | 8,250 | 247,640 | 257,040 | 154,000 | 16,472,682 |
| GELİBOLU | 18,220,390 | 13,738,550 | 77,023 | 31,030 | 9,901 | 534,798 | 257,040 | 387,100 | 32,998,791 |
| GADA | 4,108,768 | 490,171 | 4,354 | 65,140 | 7,050 | 65,369 | 604,195 | 210,000 | 4,950,852 |
| LAPSİ | 12,620,610 | 1,017,948 | 8,009 | 20,896 | 8,074 | 327,326 | 210,000 | 14,817,058 |
| YENİCE | 38,447,310 | 949,886 | 8,254 | 48,731 | 2,332 | 541,625 | 1,134 | 735,000 | 40,734,272 |
| PROVINCE TOTAL | 271,029,778 | 78,113,746 | 655,538 | 547,078 | 86,704 | 6,362,118 | 11,172,921 | 6,617,352 | 374,585,233 |

Resource: canakkaletarim.gov.tr/index.

As seen on Table 9, milk is by far the animal product having the highest monetary value in Çanakkale town centre and all districts and milk is followed by meat.

Apart from the ones listed above, there are total 361 cooperatives registered to Çanakkale Provincial Directorate of Food, Agriculture and Livestock. The total number of agricultural development cooperatives registered Çanakkale Provincial Directorate of Food, Agriculture and Livestock is 3052. Total number of cooperatives registered to Special Provincial Administration is 283; 243 Village Cooperatives, 23 Livestock Cooperatives and 17 Water Products Cooperatives. Besides there are total 4 different unions in Çanakkale. 3 of those are involved in milk production; Union of Dairy Producers (this Union has 6469 members), Union of Cattle Breeding, Union of Sheep and Goat Breeding, Union of Bee Keeping. There are total 94 dairy plants in the province. These 94 dairy plants include 75 active dairy farms benefiting from milk incentives (in order having official registrations).

Production of dairy products such as cartoon milk, cheese, crud cheese, yoghurt, ice cream, kephir etc is especially common at these dairy farms in Bayramiç and Ezine. Thanks to 3 big companies producing milk and located in Ezine and Bayramiç, the names and dairies of these districts are well known.

4. Conclusion

It is a well known fact that food production has a gradually increasing strategic importance. Studies focusing on both health and economy highlight this importance. Consumption of quality, healthy and adequate food, animal products and especially milk and dairy products included in these products are highly important for a healthy and balanced diet. Clustering concept for efficient and productive production in food industry has an impact on the world, countries and regions scale as a factor improving competing power and highly contributes to the institutions and establishments. Clustering has positive impact on knowledge, qualifications, production and distribution powers by ensuring that companies cluster in a certain region by offering advantages to each other.

This study examines the clustering status of dairy producers in Çanakkale region and operating in the same sector. As clearly evidenced by the number of producing plants and animals milked as well as the total amount of milk produced, dairy producers located within the territory of Çanakkale are clustered in Biga district. The results clearly confirm that there is a clustering in that region. The number of cooperatives and cooperative partners existing in Biga as well as the total amount milk produced and sold here also support these results.

The number of producers and provinces receiving government aid in national scale are recently and various agricultural loans and incentives are launched; these are the factors having positive influence on clustering by
proportionally increasing milk production and especially milk production quantity receiving raw milk support. In 2010, raw milk support per litre was 4 kurus, and the ministry increased the support up to 8 kurus within the first three months on 2011 and approximately 45% of total milk production receives raw milk support.

Level and efficiency of organization in the sector stands out as an important factor for clustering. National Milk Council established in 2008 and Turkish Central Union of Dairy Producers established in 2005 as well as unions, associations and cooperatives established by dairy producers and activities initiated by the Ministry of Agriculture and Livestock are proven to be factoring contributing to the overall improvement of dairy producers and clustering, as seen in Biga. Although worldwide milk production is in a pause-phase and the European Union has been experiencing a fall-back, milk production in Turkey has displayed a positive increase over past years. The increase in dairy products is more evident. The activities aimed at reducing the rate of unregistered milk in our country and improving the milk quality are being carried out meticulously.

It is necessary to provide a competitive structure to the sector by eliminating the problems the sector is suffering from and to direct the production according to the worldwide improvements and improvements in Turkey. Improving the competitive power has become even more important due to the EU membership process. In order to ensure healthy and sustainable production in food sector, it is necessary to keep up with improvements around the world and in Turkey and to come up with future oriented foresights and estimations. A more detailed and an extensive report report should be issued for meeting the need for milk and dairy products. Total milk production can be easily increased with the clustering formed by producers having the highest number of livestock which is only possible if the sector is duly organized and on the basis of government aid offered for raw milk.

This study reviews the milk producers located in Çanakkale Region and highlights the clustering characteristics of the sector and establishes the factors having an impact on the clustering. However, examining the status of dairy products such as cheese, curd cheese and milk powder as well as clustering and concept of competition on matters such of productivity of milked animal and milk quality might be needed. Also, the regional diversity of milk and dairy products in Turkey can be reviewed in terms of production and organization structure. In general, studies on increasing the demand for milk consumption can be considered.

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