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Processes of Development as Reflected in Land Use Characteristics of Agricultural Cooperatives in Israel, 1921-1991: A Case Study of the Moshav vs. the Kibbutz

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Authors' contributions

This work was carried out in collaboration between all authors. Author YG designed the study, wrote the protocol and supervised the work. Author RG carried out all field work and interviews. Authors EH and YG managed the analyses of the study. Author YG wrote the first draft of the manuscript. Authors RG and YG managed the literature searches and authors EH and YG edited the manuscript. All authors read and approved the final manuscript.

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ABSTRACT

The structure and function of the family farm in Israel might become a central theme in discussions on the question of food security in 2050. Therefore, a discussion of the future organizational structure for agricultural production required is an important issue. The purpose of this paper is to present a case study of the long-term historical development of two different types of rural settlements as part of a broader debate on the future place of the family farm in Israel. Different

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aspects related to the importance of the family farm as a cost effective production unit are being raised today for assessment in different planning frameworks, and in many cases without any consideration of a historical perspective. The results of our study show that the two communities had become specialized farms and that the family farm also tended to move toward larger sized units that allowed for economies of scale in agricultural production. This article is part of a preliminary research effort towards a comprehensive assessment of this topic and deals with the background and development of two typical organizational structures that were involved in agricultural production in Israel between the years 1921-1991.

Keywords: Food security; agricultural cooperatives; Moshav; Kibbutz; size of a family farm; organization structure.

1. INTRODUCTION

When discussing the size, function or necessity of the family farm as it relates to the question of food security in Israel in the future, it is important to analyze the major developments that led to changes in the perception of the role of the small agricultural production unit. This is especially true in light of the fact that limited water resources [1] and urban pressure on farmland [2] are anticipated as a result of the forecasted population growth in Israel which is expected to reach 15 million people by 2050. A historical perspective over seven decades should help the national planning authorities consider the needs for adjusting the agricultural production system to a changing reality so that it can survive over the long-term and to prepare for the food security objectives of 2050.

The article itself does not deal with the issue of food security directly. However, the need to address the issue of food security requires a preliminary discussion of land use. In Israel, due to the limited area available, there is a high importance attached to the question of land allocation and the type of uses. Because of the great sensitivity that the question of land allocations raises, every decision about food security policy must rely on as solid a foundation as possible.

This article examines the development of two cooperative agricultural communities from the time they arrived on the land in 1921 until the great financial crisis of the second half of the 1980s. By the end of this period, the basic structure and functioning of the family farm had changed drastically [3], a change that requires a separate assessment for the period that follows, beginning in the 1990s. The analysis in this article will focus on the years from 1921 to 1991 and the period following will be discussed in another article.

Kibbutz 'Geva' and Moshav 'Kfar-Yehezkel' were founded on the same day, December 16, 1921. The founding core of the two communities was made up of people from the second and third aliya (See definitions in the chapter of the method) that came mainly from an area that today is part of the Ukraine. They both had an outlook similar to the political party 'Poalei Zion' and some were even members of the same family. The founders of the two communities were very similar in their ideological background. This ideological foundation was based upon the importance of cooperation, mutual guarantees, and the centrality of a social system in which the individual had great importance.

The two communities in this assessment, the moshav and the kibbutz, do not fundamentally differ from any other social organizations. They are both organizations that are managed internally within the framework of agreed upon rules of its members, but equally important, their existence is also contingent upon the organization's relationship with the external environment in which it operates. The external environment which may change according to circumstances includes both local and regional government and financial institutions. The ability to mobilize the necessary resources from the external environment is largely contingent upon the importance and legitimacy given to an organization that is recognized as a stable and efficient body. Therefore, in a changing environment, the organization must also change its practices and in many cases adapt its internal structure to the new reality. Under difficult circumstances, the organization may also have to change its goals if such a change would ensure its survival [4]. Therefore, so long as the management style was maintained that had accompanied the settlements from their beginning, it was possible to follow the gradual historical lines of development in the two communities. However, it wouldn't be proper to

draw any conclusions regarding the evolution of the family farm from the early 1990s and onward because the economic crisis that occurred at that time was so great. The two periods, both before and after the economic crisis are so different from one another and the development patterns are so different that separate them, that it is necessary to separate the assessment of the first seven decades from the period that followed.

The fundamental principles of the two communities were based on the idea of state socialism whereby the state undertook the running of the various sectors of the economy in order to promote social goals and not just for financial gain [5, p. 132]. Already from the beginning, the goals and aspirations of these settlers were that the Jewish state would be established on the basis of a society that included cooperative institutions, equality, self-employment labor and farming together with a broad education that would be open to all. The 'Poalei Zion' party platform spoke of the establishment of a working nation that would adopt a cooperative organizational structure in all areas of activity and settlement for the benefit of all who worked for a living without having to exploit their fellow workers [6, p. 201]. This ideological platform essentially outlined the patterns of development of the two communities in the years to come: the moshav which was based on the decentralized family farm that relied on a shared infrastructure, and the kibbutz which was based on a large scale collective production system.

An increase in the size of the average farm over time, accompanied by a decline in the number of farms, has been documented in many countries in the world as well as in Israel. Towards the end of the 1970s and into the early 1980s, the government gradually reduced the planning and support for agriculture and also reduced the documentation of land usage. The anti-inflationary policies of 1985 led to the collapse of the cooperative system that governed the vast majority of farm activity in the country. The move away from agriculture and other structural changes accelerated as a result of the crisis. As farm income continued to decline, the remaining farmers had to increase their scale of their operation in order to make a living, and/or diversify to other income-generating activities. The increased availability of foreign workers since the early 1990s also contributed to the structural changes in agriculture and especially farm growth. It allowed farms that were initially limited by labor availability to expand faster [7]. All these changes mainly affected the structure of the family farm and this article examines the key changes over a period of seven decades.

1.1 Land Use in Israel, Background

Israel's main agricultural policy objectives are to improve food supply and achieve self-sufficiency in agricultural products that can be produced locally such as fresh dairy products, poultry and eggs, expand existing export markets, and maintain the rural population, particularly in the peripheral areas as part of the settlement policy. However, Israel's rural areas are expected to witness massive and rapid changes in land use due to changes in demography, trade, technology and urban development [8].

Land ownership within the 1967 borders, Golan Heights were included and Gaza Strip and the territories of Judea and Samaria were not included, is as follows: 80.4% is owned by the government, 13.1% is privately owned by the Jewish National Fund, and 6.5% is owned by private owners [9,10]. The total land area of Israel is about 2.2 million ha [11, Table 1.1, Area of districts]. Of the total area, about 590 thousand ha are for agricultural use, including pasture, of which approximately 440 thousand ha belong to the kibbutzim and moshavim. Forest and nature reserves are spread over an area of about 350 thousand ha. Urban area covers about 120 thousand ha, and the rest of the area is allocated for various purposes including the military [Unpublished data of the Ministry of Agriculture in 2011, [12,13]. Ownership of real estate in Israel usually means leasing rights from the Israel Land Administration for 49 or 98 years. The present landholding system in Israel can be traced back to the events of nearly a century ago [9,14], when in 1901 a private charitable organization called the Jewish National Fund was established with the intent of purchasing land for the resettlement of Jews in their ancient homeland. In 1960, the Israeli parliament passed a series of land laws and reiterated the principle that the lands would only be leased, not sold.

The 1960 laws turned administrative responsibility for the lands to the Israel Land Administration. This administration is the government agency responsible for managing the land which comprises about two million ha. Israel is unique amongst developed countries in that only 6% of land used for agriculture is

privately owned, with the remaining 94% owned by the State of Israel, the Jewish National Fund and the Development Authority [14]. Therefore, when allocating land, great importance is attributed to the maintenance of a critical mass of farmers. In addition, consideration of such goals such as the preservation of agricultural land, the preservation of green lungs areas, and the protection of national, social and public values are also considered. A leaseholder who does not cultivate his land for ten years risks losing his land-use rights, but in fact this regulation has not been enforced.

2. METHODS

All classical experiments consist of an experimental and control group. History has provided us with a situation where we find two neighboring communities which were established on the same day, by populations with very similar cultural/ideological backgrounds, and the only significant difference between them was their approach to the question of the family farm (Moshav) versus the large collective unit (Kibbutz) in agriculture. This article will describe and review these two models over the period in question.

The main sources of information were both secondary, that has been previously created, and primary. The research started by examining the secondary data and provided a starting point. It was aerial photographs that could be traced in the archives and documentation of protocols and decision-making processes. The primary data gathered for the purpose of this specific research was created from in-depth interviews. The personal interviews with functionaries of the past and present in both communities were key source of information. Specifically contributed to the assessment: Muki Yadin, Uri Berzak (Kibbuts Geva) and Gideon Yavin (Moshav Kfar-Yehezkel). Interviews were carried out as a conversation-oriented dialog with open questions. They were recorded and later on transcribed for subsequent viewing. The aim of the study was well known to the participants and they were asked to review the various processes during the reviewed period. The participants responded to the interviews and cooperated willingly and the talks were held for several hours. Therefore, it is difficult to outline the specific questions asked in every interview.

The major limitations that became apparent in this paper stem from the fact that although there exists much material about both communities regarding their historical development, there is a lack of material that has been organized in a systematic and consistent way. Some of the facts described in this work rely on the memories and personal knowledge of people who were interviewed in order to complete the picture. Naturally, memories that are influenced by the worldview of the interviewees do not necessarily match reality.

Comparison of aerial photos over time is an accepted tool for analyzing changes in land use. Land use on the moshav has been reviewed previously [15,16], and will not be discussed here. In this article, aerial photographs have a different role. The existence of aerial photographs (Source: Tel-Aviv University Archives) from almost all of the seven decades of the period under review (1936, 1941, 1947, 1956, 1961, 1973 and 1984) allows one to follow the development of the decentralized management system of the family farm on a moshav as compared to the centralized and intensively managed neighboring kibbutz. Throughout this entire period, the family farm framework was preserved in a fairly stable setup. Aerial photographs allows one to describe the population growth observed in built up areas, as well as the increase in land area use as the moshav tried to maintain in principle its rigid basic structure that eventually collapsed in the second half of the 1980s.

Using Google maps and satellite photos that are readily available today, it is now possible to follow changes in land use, something that was not so easy to do in the period from 1921-1991. Before beginning the analysis itself, we provide a picture below of the current situation on the ground (2014) with high-quality aerial photographs that enables one to identify the changes described in the lesser-quality and older aerial photographs. It is important to note that the total allocated land for the two communities is relatively small, altogether about 1,700 hectares (ha). About 800 ha were allocated to the kibbutz, and about 900 ha to the moshav. A detailed description of the farm layout will follow.

Fig. 1a. Recent aerial photograph (2014) of the location of Moshav Kfar-Yehezkel and Kibbutz Geva (Map of Northern Israel)

~ 25 Km

Source: Google Maps

Fig. 1b. Recent aerial photograph (2014) of Moshav Kfar-Yehezkel (left) and Kibbutz Geva (right)

1 Km

Source: Google Maps

The following map schematically represents the agricultural border between the two communities, and the fishery area.

Fig. 2. Recent map (2014) of Moshav Kfar-Yehezkel (K.Y., left) and Kibbutz Geva (right)
Source: Google Maps

For the Israeli reader, the following three terms do not need further discussion: Moshav, Kibbutz and Aliyah. In the Hebrew language there are plenty of sources dealing with these, such as the 'Encyclopaedia Hebraica' which is the comprehensive encyclopedia in the Hebrew language that was published in the latter half of the 20th century. They also appear frequently in the daily news. For the benefit of readers overseas, also the English version of Wikipedia was checked and found accurate for the following:

- Moshav-Ovdim (Moshav. Plural: moshavim): An agricultural cooperative settlement which relies on cooperative purchasing of supplies and marketing of produce. The family or household is the basic unit of production and consumption [17 and also http://en.wikipedia.org/wiki/Moshav].
- Kibbutz (Plural: kibbutzim): A collective community, which began as utopian communities and a combination of

socialism and Zionism that was traditionally based on agriculture. Gradually from the early 60s, farming has been partly supplanted by other economic branches, including industrial plants and high-tech enterprises [18 and also http://en.wikipedia.org/wiki/Kibbutz].

- Aliyah: The immigration of Jews from the diaspora to the land of Israel. Aliyah was developed as a national aspiration for the Jewish people, and large-scale immigration to the land of Israel began in 1881. Waves of immigration are sequentially designated by the different periods that they occurred. First Aliyah: 1881-1897. Second Aliyah: 1904-1914. Third Aliyah: 1918 to 1924, and so on (http://en.wikipedia.org/wiki/Aliyah).

3. RESULTS AND DISCUSSION

3.1 Moshav Kfar-Yehezkel

The idea of a moshav type cooperative that was based on the family farm, evolved during the years 1904-1920, when some of the new immigrants dreamt of establishing a new type of agricultural settlement that combined aspects of both the private family farm with the cooperative style of the kibbutz. The ideological basis of the moshav assumed as its goal the creation of a small intensively managed farm that would be run independently by a farmer and his family. The founders of Moshav Kfar-Yehezkel designed their settlement according to their worldview, that at its source were national and social motives, including a desire to establish a just society [19]. This desire was translated into action through the equal allocation of production resources; land, water and capital for all the residents. Together with this, the principle of mutual assistance between members and mutual guarantees in capital and marketing was also preserved. The farm model was meant to be a mixed farm in order to ensure balanced employment throughout the year [20]. A great deal of attention was focused on building a society based on the individual who functioned with the support of the other members. Mutual assistance was expressed primarily by work in the privately owned fields of the moshav as well as in the collectively owned fields. However, when the first privately owned tractors arrived in the early 1960s, the moshav members stopped working together as they were no longer dependent on each other for manpower and mutual assistance was mainly reflected in the area of credit. Over the years, the influence of technology in all areas of life was evident and eventually the family farm unit changed from a mixed farm to a specialized one. Another technical factor that influenced the economic decision making of the members during this period, was both public and private transportation. With the increased availability of transportation, one could now more easily get off the moshav in order to supplement income in situations where the family farm failed to provide an acceptable standard of living.

In the beginning, the first families of Moshav Kfar-Yehezkel organized themselves as if they were members of a small collective Kibbutz type farm. The plan was for a settlement of 80 family farm units plus 40 families of professionals, as teachers, bookkeepers, mechanics and the like, for a total of 120 families. As can be seen in the aerial photograph from 1936 (Fig. 3), the settlement was built in the shape of a circle but with two outgoing rays from the center, to allow for future expansion [21, p. 82].

In Fig. 3 it can be seen that the farm units on the western wing were not yet populated. Only with the end of the Second World War, the second generation gradually took over the responsibilities of running the private farms and the moshav institutions, and many of the second generation remained on the moshav [22, p. 12-13]. The whole question about the place of the succeeding generation on the parent's farm was dependent on one of the basic principles of the moshav, which was not to sub-divide the family unit. The purpose of this principle was to prevent the fragmentation of farms into small units or alternatively create huge farms and thus violate the principle of equality in allocating factors of production. Therefore it was possible for only one of the family members to stay on the parent's farm and the others had to find themselves other arrangements. Throughout this period and in light of the difficult economic situation, there was not excessive demand to return to the parent's farms and thus it became a local problem of individual families. Only with the improvement of the economic situation in the late 1960s, and the return of the third generation to the moshav, did a problem begin to arise, but it was largely resolved by populating empty farms.

After the establishment of the State of Israel (1948), as a partial solution to the problem of settling new immigrants and solving the problem of food supply to a rapidly growing population, the state institutions responsible for settlement,

forced the members of Moshav Kfar-Yehezkel in the early 1950s to increase the number of farm units by developing additional lands, west of the established complex. This can be seen clearly when comparing the photos in Figs. 4a/4b, taken in 1941, with the photo in Fig. 5, which was taken in 1956.

Fig. 3. The decentralized structure of the family farm (Moshav Kfar-Yehezkel, 1936)

200 m

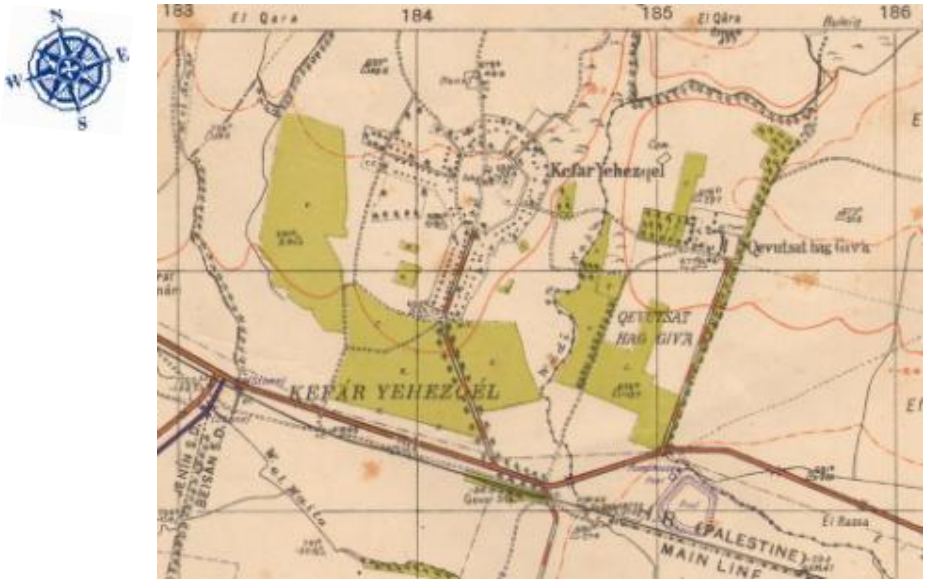

Fig. 4a. The map of Kibbutz Geva ('Qevutsat Haggiva') and Moshav Kfar-Yehezkel (Originally 1:20,000, 1941)

1Km

Fig. 4b. The decentralized family farm vs. the centralized Kibbutz (Kibbutz Geva and Moshav Kfar-Yehezkel, 1941)

1 Km

Fig. 5. Expansion of Moshav Kfar-Yehezkel and addition of agricultural lands to both settlements (1956)

1 Km

The moshav was compensated for increasing the number of farms by being allocated about 200 ha of additional lands from the abandoned village Zarain (In some references: 'Zirin') whose residents were expelled during the War of Independence as a result of hostilities. The new immigrants that received family farms in the new expansion were not accepted socially on the moshav, their economic difficulties were great and they quickly abandoned the moshav for the cities in the center of the country and left behind many empty farms. At the end of the 1960s, almost fifty years after its founding, the moshav had a total of 58 productive farms on 900 ha. In the early 1970s, one already began to see the third generation returning to the moshav working alongside the second generation, or as independent farmers. The return of the third generation as residents of the moshav was not something obvious, because this generation also had other options such as academic studies or jobs off the moshav that paid higher wages. The question of who would return to the moshav after completion of military service or academic studies preoccupied moshav members because they did not want the moshav to become a home for those that just recently failed in their studies, or for those who were not good enough for the outside world [22, p. 73, 134).

The influence of ideology, which places the nuclear family at the economic core of the moshav, is expressed well in the photo from 1941 (Fig. 4b). Moshav Kfar-Yehezkel borders Kibbutz Geva from the west and the idea of the family farm being a separate fundamental unit can be seen in the layout of small plots as compared to the arrangement of the neighboring kibbutz with its large highly organized plots. The decentralized farm structure that can be seen on the aerial photos is due to the division into relatively small plots of the fields located next to the family estates. The residential area on the moshav as opposed to the situation on Kibbutz Geva, was built over a larger area for the purpose of allowing the construction of more family dwellings, with the accompanying farm structures and plots of land linked to them. It is possible to clearly see the difference in the layout of the residential areas of the two communities. On the moshav, each farm unit is linked to the family homestead giving the appearance of a mosaic, as opposed to the large land tracts seen on Kibbutz Geva. On part of the western fields of the moshav, that at this time were collectively managed, are lands that would later be designated for expanding the number of farm units to accommodate fifty immigrant families in 1950.

In comparison to the Kibbutz structure, it can be seen that the dwelling and cultivated areas on the moshav were not concentrated in just one area. The approach to managing the family farm was by arranging each farming unit such that it included a home, farm buildings, and cultivated lands for family but not collective use, behind the house. The desire to allow the individual a certain degree of freedom in his decision making process was based on the founders approach with respect to the importance of the family farm as the foundation of the economic structure of the moshav. As a result of this, planners placed the family dwelling unit together with the means of farm production. However, the farming structure that needed to be created much later made it very difficult to have the production side and the family dwelling existing side by side as a single unit.

Up until the War of Independence (1948), the lands west of Moshav Kfar-Yehezkel were the lands of the village Zarain, which were divided between the Moshav and the Kibbutz at the end of the war, as were the lands of Kumi, a village which was to the east of Geva. These areas show the characteristic tile pattern of lands divided into small family sized units of these Arab villages, and after the lands were transferred to the Kibbutz and to the Moshav, they were cultivated in accordance with the typical way for each of these communities. In Fig. 5 from 1956, one can see this phenomenon very well. Where these lands were transferred to Kibbutz Geva, the cultivation style changed and they became intensively managed large plots. The desire of the moshav members to maintain the family farm agricultural system resulted in the division of these lands into small family sized units. The creation of numerous access roads to these smaller plots lowered the efficiency in the use of farm production factors. In the early years, this did not create a major obstacle when the production processes were based on manual labor alone. But over time the division of the agricultural fields into many small units did become an obstacle as the family farm underwent a process of specialization and increased production. The future generations wanted to live in close proximity to the family estate, and therefore the strict ideological rules of the founding generation had to be relaxed.

Management of the family farm as an economic unit was also accompanied by a social structure that was expressed in the public decision-making process and through the institution of the General Assembly that maintained the principal of voting equality among the individual family farms and allowed for separate voting by both female and male members. The General Assembly selected a management committee which was comprised of three members with a one-year term, and who were responsible for making the final economic decisions about the day to day operations of the moshav. Nevertheless, all major and important decisions were brought to the General Assembly, which served as a forum for exchanging ideas, debate and also a place for making decisions. Practically speaking, the moshav was run by a manager who was also the head of the three man management committee and who usually had the complete backing of the General Assembly. Only years later, at the end of the 1980s, which corresponds with end of this survey period, did there begin a structural change in the economic management system of the moshav, as a result of the harsh economic crisis that occurred and the social crisis that accompanied it.

In the period before the age of television, considerable effort was devoted to cultural issues, and the committee appointed by the General Assembly to organize cultural activities was one of the most important in the daily life of the moshav. In the early years, after working hours, members would meet to enrich their cultural world in literature with reading study groups. Over the years, until the introduction of television into private homes, members used to gather at an assembly hall for meetings, joint celebrations, plays and movies. During the 1960s for example, viewing a movie was an important social event [23]. Social life on the moshav was the basis for community life and provided organizational support for the economic units that were managed in part by families and in part by some type of cooperative mechanism [22]. However, despite the importance attributed to community life and the various cooperative frameworks, the family farm was the heart of the production process. From the founding of the moshav (1921) to the establishment of the state (1948) and then later to the 1980s, there were ups and downs in adherence to cooperative values, although the principles of the moshav remained solid. From the time of the founding of the moshav and despite the centrality of the family farm in the economic and social outlook of the founders, significant weight was given to setting up cooperative management systems, thus creating a support system that to a large degree protected the relative stability of the single family farm [24 p. 674].

Because of the fixed number of farms on the moshav, an improving economic situation had no impact on the number of farm units, which remained constant, and the geographical structure of the moshav remained largely unchanged [21 p. 119; 22 p. 134). Dairy farming on the moshav was constantly growing and Moshav Kfar-Yehezkel became the country's largest milk producer. All of the economic branches on the moshav were managed and assisted by separate professional committees. In 1945, as the volume of economic activity increased following the end of the war (WWII), the moshav members decided to create a single economic committee in which all the various farming sectors were included. This decision made it possible to develop and utilize more effectively the common resources that were available to the moshav. This was seen in diverse fields such as electric incubators, partial flooring for the dairy, building of water reservoirs, construction of a pipeline etc. During that period of time, most moshav members worked on their family farm. Very few worked on the outside and those that did had little impact on the economic activity of the moshav [21 pp. 121-123).

The end of the 1960s was a turning point in the development of the family farm. It was then that a transition from the classical mixed system to the specialized farm, with its inherent increased centralization and mechanization began. This economic development required large investments; both for the family and the cooperatively run farms. For this reason, the moshav joined a centralized credit program. The importance of this program was that there was a clear understanding of the scope of allowed investments as well as how much cash could be loaned to each member individually and to the moshav collectively. The ability of each individual farm to bear the burden of costs, investments and interest payments was the criterion that determined the size of the economic investment.

Fig. 6 from 1984 shows that the fields in the northwest were part of lands that were cooperatively managed until 1977. They were divided between all of the moshav members. Each member worked their own area and chose the crops they would grow according to their

expertise and the needs of the farm. This can be seen by the patchwork appearance in this photo versus the uniform appearance in this area that can be seen in the photo from 1956 (Fig. 5). At the same time on the moshav, the transition from a mixed farm to a specialized one was completed and with it came all the considerations about the economies of scale. This management system brought with it the desire to grow crops in fields as big as possible under monoculture. This is reflected in the uniform strips around the houses as opposed to the patchwork like fields behind each house and around the entire moshav as can be seen in Fig. 4b (1941).

Israel's turbulent economic environment in the early 1980s did not fit the structure nor the set rules of the game of the moshav. The economic management system that had been placed in the hands of the cooperative's professional committees, disconnected the members from following their businesses. There was nobody who properly oversaw the moshav treasurer and there were no real controls over the purchasing managers. All continued, without exception, to make the same mistakes again and again. The moshav members were certain that the government would guarantee their debts and therefore the banks were not afraid to give a large amount of credit to the moshav. Moreover, the lending banks wanted to give loans no less than the moshav wanted to receive them. By September 1986, ten out of the twelve purchasing organizations collapsed, and with their downfall the entire moshav sector was caught up in an unprecedented crisis. As a result of the crisis, the government, the Jewish Agency and the -banks formulated an agreement that allowed for a debt repayment schedule that would make possible continued production [24].

3.2 Kibbutz Geva

Despite the similar ideological background, countries of origin, age and even occasionally family relationships, the kibbutz differed significantly from the concept of the family farm. In contrast with the principles of the neighboring moshav, which based its principle economic foundation on the family unit, the fundamental principles of the kibbutz were based on the existence of a cooperative system in which its members were full partners. The fundamental idea of the kibbutz determined that for the sake of making a living it was not necessary to exploit his fellow man, and that a person could make a decent living while giving expression to his spirit and talents [25]. The kibbutz members advocated economic and social equality for all, independent work and full partnership between kibbutz members with respect to property, production and consumption [26 p. 191]. The kibbutz lifestyle included a common dining room for all the members, a shared clothing warehouse, a work schedule that applied to all of its members and government by means of a General Assembly. The idea of the kibbutz was national settlement on state owned lands and funded by the state, mutual responsibility between kibbutz members and the responsibility of the group towards the needs of the individual.

When Kibbutz Geva was established in December 1921, there were 12 members in the group. Initially, women worked in the fields and the men were assigned the role of construction. After the main buildings were built, a new work arrangement was established in which all members were expected to do all the tasks of the kibbutz. The work schedule was set each day after dinner in the dining room [27 p. 37]. There were some jobs that required expertise, and others requiring prior knowledge, that were created almost with the establishment of the kibbutz, such as a doctor, that were general in nature, and done by all members either by special enlistment or by a rotation of qualified professionals. The ideological basis of the kibbutz dictated the status and special role of the central dining room as one of its defining social characteristics. It was a central and important meeting place, far exceeding its limited functional role as a place for eating [27 pp. 194-196]. With time, especially towards the end of the 1980s, the status of the dining room as a meeting place for dealing with the various issues involved in running the kibbutz declined, and gradually members stopped coming as their homes became equipped with kitchens and refrigerators. The first radio arrived on Kibbutz Geva in 1931, and it was debated among members the question whether it should be permitted to use radios in private residences. The most common opinion was that they should not be allowed for private use [28]. In the end not only were radios allowed, but eventually television as well. In Kibbutz Geva's seventh decade, in the early 1980s, the infrastructure was set up for telephones, computers and electrical appliances. When these products entered the private homes there was no longer a need for entertainment and social events, something which struck at the core of collective social life that had been such an important part of the kibbutz way of life.

By 1924, crop production at Kibbutz Geva was still not very successful, despite the agricultural efforts that had been expended, and so the members decided to establish a mixed farm economy. Similar to the process that occurred at the neighboring Moshav Kfar-Yehezkel, mechanization entered the kibbutz with the purchase of a tractor and other machines. Kibbutz Geva of the mid 1920s still did not have a comfortable lifestyle, however the economic base of the Kibbutz significantly improved. New tools, buildings and capital arrangements that were made, gave the members of the kibbutz an economic stimulus [29]. By 1927, a new dairy farm was established after the previous one had to be destroyed due to a contagious disease that resulted in miscarriages and the dairy industry gradually became stronger and well established. In the mid- 1960s the cornerstone was laid for a new milking parlor that was considered the most advanced in Israel.

While its twin neighboring moshav had already grown to 60 family farms, Kibbutz Geva still remained a very small kibbutz with few members. In 1924, the kibbutz drew up a plan to expand to 20 families, which would subsist mainly from field crops and small farms plots. In 1925, Kibbutz Geva expanded with the addition of 15 members. However by the end of its first decade, many members left the kibbutz due to financial hardships, a low standard of living and a small, limited, group of friends. The feeling of crisis ended when another group of 15 members joined the kibbutz. In the 1930s, young adults joined the kibbutz, thereby slightly strengthening its standing. From a small intimate group that was run in an informal way, Kibbutz Geva became a larger community that was run by numerous committees. The Kibbutz Geva of the 1930s made a major change in its world outlook. Now, growth would not be for reasons of rescuing and rehabilitating society but rather for the desire to be simply part of a collective, the kibbutz. In the beginning of 1941, the first group of youth that were born in Kibbutz Geva was accepted as members, signaling a turning point in the source of the new members for the kibbutz, which up until this point had taken in pioneer youth that had immigrated to Palestine. By the end of 1941, the 20th year since Kibbutz Geva's founding, the population numbered 300 adults and children. From the beginning of the 70's and over the next 20 years to 1991, the population remained fairly steady at 300 members, 180 children, and in addition temporary residents that were made up of volunteers, salaried workers and the like (from an interview with the Kibbutz Geva treasurer and member Moki Yadin 2010).

Fig. 6. The decentralized family farm vs. centralized farming on the Kibbutz (1984)

Fig. 7. Centralization of buildings and lands on Kibbutz Geva (1947)

3.3 Comparison of the Two Communities

Figs. 3 (1936), 5 (1956) and 7 (1947) show the internal structure of each of the two neighboring communities. Fig. 4b (1941), shows the two communities as seen side by side and shows the structural differences between the family farm and the intensively centralized kibbutz. To the east of the kibbutz lands are part of the lands of village Kumi, a territory that would become part of Kibbutz Geva at the end of the War of Independence (1949). In the photograph, it can clearly be seen the differences in the layout of the land, with the small plots of the village and the large kibbutz fields to the east, and the outline of the family farms of Moshav Kfar-Yehezkel to the west. The lands designated for residential living on the kibbutz were concentrated into a small area, as opposed to the dispersed farm structure of Moshav Kfar-Yehezkel. Fig. 5 shows the two twin settlements in 1956 after the expansion on Moshav Kfar-Yehezkel and the additional lands that were given to both communities. On Kibbutz Geva, the main changes were an increase in the residential area of the kibbutz, increased land allocations, and the establishment of a fishery division. The expansion of the residential areas followed an increase in the number of members and potential members which doubled during the third decade of the kibbutz. This was due to a change in its social outlook and the transition from the idea of a small and intimate kibbutz to a much larger community. In the southeast section of Kibbutz Geva the new fish ponds are discernible. In Moshav Kfar-Yehezkel it is possible to see the expansion west of the original settlement that included fifty new farm units that were added to absorb immigrant families in 1950. To the north and west of Moshav Kfar Yehzkel are located the communal farming areas which can be seen as large plots. Despite the importance of the idea of the family farm, the communal farming areas were worked collectively, similar to the way they were done at Kibbutz Geva. Later, in 1977, these common areas were divided into separate plots and transferred to members for private farming. This change reflected the weakening of the concept of communal sharing, in favor of strengthening the independent economic unit.

At the end of the War of Independence (1949), both communities annexed lands from the former neighboring Arab villages. In two aerial photos (Figs. 5 and 6), it can be seen the area that was added to Kibbutz Geva to the east. Additional lands were added to the kibbutz from the west to Moshav Kfar-Yehezkel from the village Zarain. Altogether 630 Ha were added to Kibbutz Geva after the war, thereby reaching its maximum size of 810 Ha. In addition, it is also possible to see another section of 200 Ha that belonged to village Zarain that was given to Moshav Kfar-Yehezkel, which is located south of the settlement. The moshav also reached its maximum size of 900 Ha [30].

Fig. 8 is a photograph of the two communities in 1961. Excluding the dramatic events that occurred during the War of Independence, changes in the two communities over time were slow and gradual. In this photograph, the developed residential area on Kibbutz Geva appears larger than in the past. To the east of the residential area, are lands that were set aside for the expanding dairy that was to be centered in one location. This area would in the future be set aside for the 'Bakara' factory that was to be built, as the kibbutz became industrialized. Essentially, all the livestock on Kibbutz Geva was concentrated in the eastern part of the kibbutz, away from the living areas. This was in contrast to the moshav where all the livestock was situated behind the family dwellings and encompassed the moshav from all sides. South of the main road were the fish ponds that increased in size as a result of expansion of the fishery division on Kibbutz Geva. In the area to the east of Kibbutz Geva can be seen the expansion of the citrus fruit industry as opposed to the situation in 1941 (Fig. 4b). In the expanded area of Moshav Kfar-Yehezkel, only a limited number of immigrant families remained after the vast majority had abandoned their farms due to both financial and social difficulties. In the center of the village more residential housing was built without adjacent farms, evidence of a change in the conceptual foundation of the type of settlement of the moshav.

The two communities continued to develop in parallel. Fig. 9 shows the two communities in 1973 with very few changes. In Kibbutz Geva you can see concentrated in a single area the new dairy farm that was built in the mid-1960s with a modern milking parlor. This farm, which includes all of the various branches of the dairy is east of the old one as seen in an aerial photograph of 1961 (Fig. 8). In 1964, the 'Bakara' factory was built on the grounds of the old dairy and the new dairy was moved eastward and was concentrated together with all of the other livestock and the poultry divisions that were downsized or closed. The kibbutz fruit orchards included citrus and pecan trees, changes that reflected the transition from a mixed to a specialized farm economy. In addition, they also show the vigorous development of Kibbutz Geva's economy during the 1960s, and the development of industry on an agricultural kibbutz. The residential area had not changed since 1956 showing that the kibbutz population remained stable over this time period.

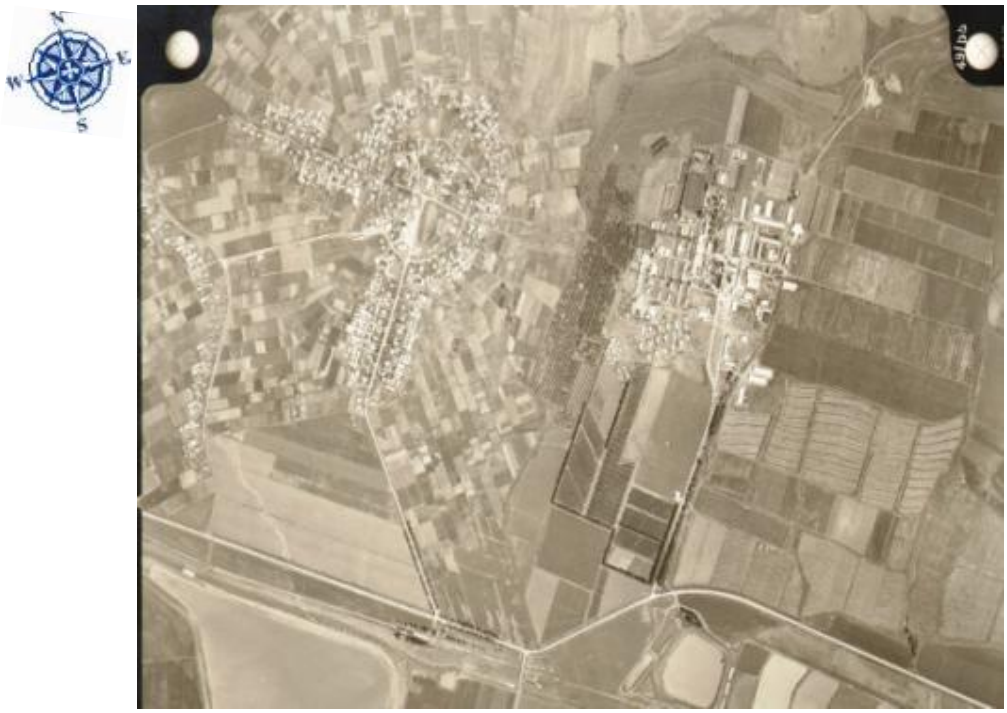

Fig. 8. Decentralization of the family farms vs. centralization of the kibbutz remained relatively unchanged (1961)

1 Km

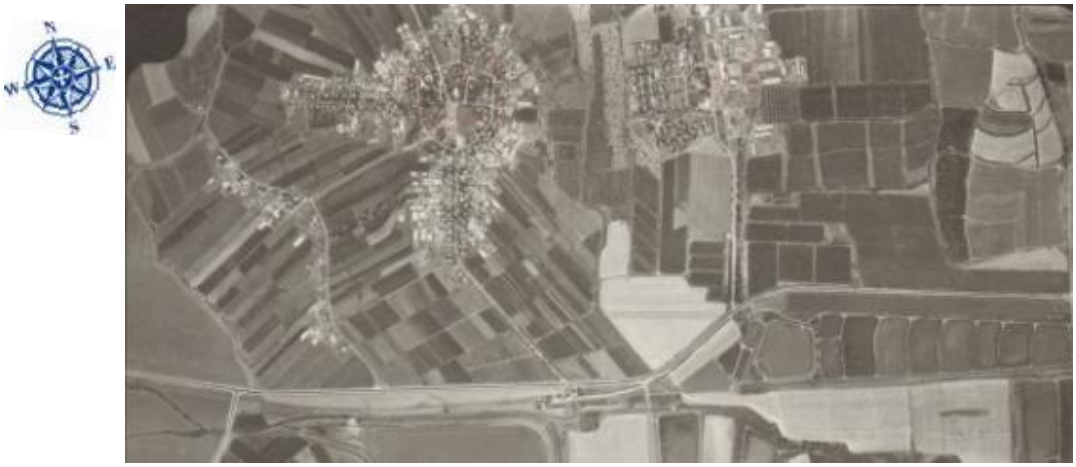

Fig. 9. The specialization process of the family farm and the reduction of the number of agricultural plots (1973)

1 Km

Fig. 6 gives a picture of the two settlements in 1984 which is towards the end of the period reviewed in this article. On Kibbutz Geva, the main changes were the larger centralized dairy that had been built in the mid-1960s with a new cow shed for future expansion and the new modern milking parlor. The area designated for the 'Bakara' factory doubled to 3,000 square meters in a process of growth and expansion that began in 1979 and ended in 1981. The area for the 'Shekedia' factory was located adjacent to the pecan grove which provided raw materials for production.

Notable developments that occurred in both communities during this period were expansion of the residential areas and changes in the farm structure including an expansion of the overall land area. However, the basic format was maintained throughout the period under review as can be seen in the aerial photographs over the years. The first factor, were the residential areas that grew and developed over the years in both communities as a result of population growth. In Kibbutz Geva, additional land was allocated for residential living for kibbutz members, whereas in Moshav Kfar-Yehezkel the expansion included the addition of new family farm units. An additional developmental factor was the total land area of each of the two communities and the land area of the two settlements reached their present size after 1949. The third developmental factor was the addition of industry to Geva and the dismantling of the collectively farmed lands on Moshav Kfar-Yehezkel.

The subject of lands allocated to Kibbutz Geva was a topic of never ending debate between the 'Agricultural Center', an umbrella organization for the farming industry in Israel and the kibbutz. The historical division of the lands was not consistent with the reality. In 1932 Kibbutz Geva received 300 Ha of arable land for temporary use to ease its land shortage. However a disagreement about the use of these lands developed and eventually reached the pre-state central governing institutions. After some time there were further deliberations and the council members were convinced by the position taken by Kibbutz Geva and in a final decision approved the plan for adding fifty families, with additional lands being allocated to the kibbutz.

In the beginning of the 1940's, Kibbutz Geva had a mixed farm economy that could provide most of the food supply for its members and livestock, independent of outside sources. The work schedule was designed in such a way that it could provide a continuous food supply throughout the year. This approach was what in fact determined the number of agricultural branches on the kibbutz and the relative size between them. However, commercial considerations about profitability were never determined, and as a result, the effects of technological advances on the development of the economy were never seriously considered. Up until World War II, under conditions of free trade, and a free flow of food from production areas to growing areas, it was difficult to compete in the market economy and make a

living. The kibbutz was only able to survive as a result of a frugal lifestyle and hard work. In the postwar years, there was a slow, steady increase in profitability of the Geva economy. With the establishment of the State, developmental changes on the kibbutz accelerated and mechanization took on a larger role in production.

Already by the end of the 1950s, the need for industry was being discussed at Kibbutz Geva. The decision to build an industrial plant on Kibbutz Geva came in response to social and economic processes that had developed in the agricultural based economy, processes that created hidden unemployment on the one hand, and on the other hand a recognition of the potential for both human and economic development that was looking to be expressed. The 'Bakara' factory, whose plant operations began at the end of 1964, was established on a social and economic foundation that fit the expectations of the kibbutz. The factory manufactured products for automation such as: solenoid valves, air valves and air cylinders. The elements that influenced the character and success of this enterprise were:

1. The plant would produce and operate without hired labor: this decision could be a crippling factor in the development of the factory, but it would allow it to achieve technological independence and freedom from dependence on external factors. In this way the value and contribution of the kibbutz members who worked at the factory could be acknowledged. The awareness by the factory workers that they must find a solution and an answer for every question, raised their professional level, and placed before them constant challenges.
2. The factory hired any kibbutz member who wanted to work. This principle was decided from the beginning; that the development and growth of the factory would be done by only hiring new workers from the kibbutz.
3. The factory operated over a wide range of activities in all areas of production; management, engineering and marketing: This was done in order to allow the worker to find an area of interest. Like many other decisions, this decision was also difficult to implement at first, but proved itself as it contributed to the consolidation and profitability of the factory over time.
4. The sphere of activity of the factory was determined in accordance with the wishes of the members: When the factory was established the areas of activity were determined in such a way that would allow for expansion into new fields as well as furthering development in already existing ones.
5. The factory was more than just an economic tool: it was also supposed to address societal needs as well as provide a personal answer to the needs of the worker. A worker at the plant was supposed to feel that his personal well-being was the primary consideration before for any technological and economic decisions were made.

Balance sheets of the early 1970s showed that there had been continuous growth from the beginning of the factory's establishment. In 1981, an expansion process that doubled the size of the factory was completed. The marketing system was also expanded, encompassing all areas of the country as well as abroad and successfully covered a large number of countries and markets.

In agriculture, a specialized industry was set up, an almond division, that began to compete with field crops. Members from the various branches began to compete for resources instead of helping one another, creating a new situation which was damaging to the idea of mutual responsibility. This was very similar to the situation that was occurring between the various branches in its neighbor, Moshav Kfar-Yehezkel, which also brought about a lessening of the desire to help one another. The transition at Kibbutz Geva to a specialized economy was similar to the process that occurred in Moshav Kfar-Yehezkel. In Kibbutz Geva, it was decided to develop the industrial part of the economy and a food processing plant, 'Geva Food Products' was set up. In 1981, a committee proposed setting up a new processing plant and that same year a working group was set up to work on the construction of the factory that began production and marketing in the summer of 1982 [27].

By the end of the 1970s, there was a sense of economic stability in Kibbutz Geva due to the strong performance of the economy. This feeling led the group to invest considerable capital in the 1980s in industry, including the years 1985-1986, a period when inflation was very high. Just like in Moshav Kfar-Yehezkel, where they had not

properly assessed the economic situation and continued to buy on credit and increase debt, the financial heads of the kibbutz also didn't properly analyze the situation and continued to expand the 'Bakara' factory, which had been profitable over the years, with investments that were made without proper sources for financing. Muki Yadin, the Kibbutz treasurer at the time related that "Kibbutz Geva thought that the kibbutz profits were enough to expand 'Bakara', but it was in fact a great financial strain. Together with the mistaken investments in bank shares, tremendous financial damage was caused".

4. CONCLUDING REMARKS

This article reviews the development of two communities, Kibbutz Geva and Moshav Kfar-Yehezkel over seven decades, from 1921, the year the two were founded, to the end of the 1980s, with the beginning of a new decade after the major economic crises of the 1980s. Although the structural frameworks of the two communities were ostensibly quite different, a closer look surprisingly revealed that not only were there no real rivalries between them, rather they remained close to each other in their worldview. The main difference between the two communities was due to their disparate views about their idea of cooperation, a conceptual difference that had already been formulated even before they had settled the land. On the moshav, the idea of the family farm was held up as the foundation for all social and economic activity, whereas the neighboring kibbutz managed their agricultural production in a highly centralized fashion.

As a result of these different conceptual outlooks about cooperation, the two communities differed with respect to the need for increasing the number of members. If at Moshav Kfar-Yehezkel it was clear from the outset that it was essential to increase their population, on Kibbutz Geva, members were asked to maintain their uniqueness as a small group. Only in the thirties did this perception change, as Kibbutz Geva opened itself up to the idea of taking in new members in order to grow. If at Kibbutz Geva they were particularly strict in the way they insisted on choosing new members, at Moshav Kfar-Yehezkel they were much more open and tolerant in their approach to accepting new members. Both Kibbutz Geva and Moshav Kfar-Yehezkel reached stable populations in the early seventies and up to the end of this review period over the next twenty years, their numbers grew only moderately.

When considering the process of economic development in Moshav Kfar-Yehezkel, we find a cycle of moving in and out from one crisis to the next, while the overall economic framework was largely maintained throughout the period. The only exception to this was the privatization of cooperative farming with the transfer of full responsibility to the members themselves. For Kibbutz Geva in contrast, the economic crisis of the late 1950s brought the kibbutz to lay the groundwork for adding industry to their economy. The 'Bakara' factory and later 'Shekadia' factory, became important factors in the economy of the kibbutz. The cooperative economic system on the moshav that relied initially on mutual support in work, later became a system based on mutual financial guarantees and thanks to this change, the members of Moshav Kfar-Yehezkel could cope more easily with their economic difficulties. In the 1960s, the two communities completed in parallel the process of transition from a mixed to a specialized farm economy.

As part of this process, some of the family farms abandoned agriculture or only made a partial livelihood from it, as members began to go out and make a living from work outside of the moshav. The 1970s were characterized in general by a growth that was felt in the economic profitability of the two communities. In contrast, the 1980s, which closes the period of this review, both communities in parallel, experienced a difficult economic crisis. For the family farm this crisis was most significant, and as a result a new period in their life began, but which is not surveyed in the framework of this paper.

At least one important conclusion can be learned from this review. Until the 1960s, when human labor was the main component in production, the differences between the systems were negligible. However, if we put aside ideology and only consider what happened as technologies entered into the production process it can be concluded that the effectiveness of the family farm as a base for sustainable agriculture economic is inferior to the centralized kibbutz system. This conclusion stems from the fact that under almost optimal conditions of a case study with both test system and control system, decision-makers in the family farm adopted the pattern of the collective economy. It was not because of ideology but because of economic viability.

This article is part of a preliminary research effort towards a comprehensive assessment of this topic and deals with the background and development of two typical organizational structures that were involved in agricultural production in Israel between the years 1921-1991. The article reviewed only the first part of the study. The period from the mid 80's until today require a separate discussion. However, as this paper is published in 2015, certainly curious to know what is the current status. Well, it is a very complex theme indeed. Agricultural production in Israel is significantly affected by complex legislation regarding agricultural land ownership rights. But on the other hand, the economic reality is not always consistent with the intentions century ago of the founders of the communities.

The great importance of this issue stems from the fact that the structure and function of the family farm in Israel might become a central theme in discussions on the question of food security in 2050. Therefore, a discussion of the future organizational structure for agricultural production required is an important issue. Different aspects related to the importance of the family farm as a cost effective production unit are being raised today for assessment in different planning frameworks, and in many cases without any consideration of a historical perspective. The results of our study show that the two communities had become specialized farms and that the family farm also tended to move toward larger sized units that allowed for economies of scale in agricultural production. Evidently, there is a need to complete the assessment of the developments during the last half jubilee. Moreover, further research is needed to address the issue of land ownership rights against the goals of overall national food security. This is only the first step in a long march towards the regularization of long-term planning of agricultural land usage policy in Israel towards 2050.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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