

**«Inventory of Post-War Situation of Land Resources in
Bosnia and Herzegovina – GCP/BIH/002/ITA»**

Report on agricultural genetic resources in B&H

Present state

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Table 1 shows the present state of agricultural genetic resources through areas used for growing some basic agricultural crops (fruits and wine grapes are excluded).

Tab. 1. Areas used for agricultural production, expressed in 1,000 hectares

Last five years	Arable land and gardens	Sown areas					Nurseries and the rest	Idle and uncultivated agricultural land
		Total	Cereals and maize	Industrial plants	Vegetables	Fodder plants		
1.	1,021	604	359	9	94	142	2	415
2.	1,030	638	382	9	100	147	1	391
3.	1,055	619	367	8	97	147	2	434
4.	1,020	608	367	7	88	146	3	410
5.	970	581	347	5	89	140	1	388

From the table shown above it is easy to see that in the last five years most of the agricultural land has been deployed for production of cereal and maize crops. Fodder plants come in second place and they take up a considerable area of agricultural land in use, while vegetable plants come in distant third. The industrial plants are only symbolically represented. It is also significant to point out that large areas of potentially productive soil are not cultivated or just lay idle (around 50%).

The following table shows main agricultural crops, the amount of land on which they are grown and their average yield (Table 2).

Tab.2. Land areas on which are sown main crops and their average yield

Crops	Year production	
	Sown area in ha	Average yield t/ha
Wheat	108,751	2.6
Barley	23,473	2.4
Maize	203,265	3.9
Potato	46,059	8.8
Onion, red	5,193	5.6
Bean	9,519	1.1
Cabbage	7,136	10.8
Tomato	4,490	7.4
Paprika	4,061	6.5
Tobacco	3,269	1.2
Carrot	1,647	5.1
Cucumber	1,175	3.0
Clover	50,601	3.5
Alfalfa	35,376	4.3
Combined grass and clover	21,029	3.4
Forage maize	5,491	17.5
Cattle beet	2,385	14.4

The data presented in Table 2 shows that maize is the main agricultural crop in B&H, after which comes wheat, then clover and potato. The crops that are cultivated the least are carrot and cucumber. Average yield for the counted crops is generally very low. Highest average yield has forage maize, after which comes cattle beet. The lowest yields are found in bean production.

Further analyses of the average yield of the main B&H crops, together with comparison between B&H and the average yields of European countries for the same crops are given in Table 3. Also shown in this table is the range between the lowest and highest yields for the same crops but different region in B&H.

Tab. 3. Yields for the main agricultural crops compared to the same in EU, as well as the range depending on the region of production

Crop	Average yield t/ha	The range of average yields		Average yields for European states
		Highest	Lowest	
Wheat	2,6	3,6 –Posavski canton	2,4 –Srednjobosan.c.	7,6
Barley	2,4	4,1 –Unskosanski c.	1,6 –Hercegbosan.c.	5,5
Maize	3,9	5,5 –Posavski canton	1,1 –Hercegbosan.c.	9,9
Potato	8,8	13,6-Hercegova.-neret.c.	5,0-Posavski i bosan.podrinjski c.	37,8

Onion, red	5,6	8,8 –Zeničkodobojs. C.	3,9 –Bosanskopod. c.	28,2
Beans	1,1	1,9- Hercegbosans. C.	0,6 –Tuzlanski canton	1,8
Cabbage	10,8	23,8 - Hercegovna.-ne.c.	7,4 –Posavski canton	19,4
Tomato	7,4	18,9- Hercegovna.-ne.c.	3,7-Hercegbosans. C.	47,2
Paprika	6,5	24,3- Hercegovna.-ne.c.	1,5-Hercegbosans. C.	21,5

On the bases of the data shown in Table 3 it is easy to realize that the average yields for the main crops in B&H are well below the EU averages for the same crops. This applies to all the crops with the only difference being that some of the crops are further from the EU average than others. What is also clear by observing the width of the yield range inside B&H is that much higher yields are obtained in some regions of the country while they are much lower in other parts. This implies that high level of production is possible inside the country as a whole. The main reasons why this difference exists as well as some reasons why B&H agricultural yields are so far below the European ones are the following:

- Low level of technology used in cultivation for each crop,
- Availability of only out-dated varieties to farmers
- Inadequate growing conditions which do not allow the full expression of genetic potential of the plants.

Due to inadequate land inheritance laws the average size of an individual farm is shrinking. Number of these farms is large, but their size limits the production and profit level, which each individual farm can obtain. This means that large investments in equipment cannot be made. Also the farmers themselves are not open to new ideas and that is why out-dated technologies are hard to replace with new, more productive ones.

The present state of fruit production for the main fruit crops in B&H is given through number of planted fruit-trees, in the table 4. In the table 5 the state of grape-growing production is shown through used land areas for grape growing production.

Tab. 4. Number of planted fruit-trees for the most important fruit crops in B&H, expressed in 1,000

Entities Canton	Plum	Apple	Pear	Peach	Cherry	Sour-cherry	Walnut	Total
1.Unsko-sanski c.	913	128	63	6,8	33	2,7	86	1233
2. Posavski c.	108	13	10	0,5	2,7	9,2	4,3	148
3. Tuzlanski c.	1476	165	150	12	79	76	43	2001
4. Zeni.-dob. C.	1114	292	186	1,5	68	16	37	1715
5. Bosa.podrinj. c.	152	79	39	0,5	52	9,7	18	350
6. Srednjobosa. C.	466	119	66	0	18	0,9	11	681
7.Herce-nretvan. C.	403	161	89	198	213	68	39	1171
8. Zap.-herceg. C.	16	16	7	12	32	5,4	13	101
9. Sarajevski c.	341	102	89	0,3	9,2	6,3	5,8	554
10. Hercegbosa. C.	72	20	7,4	-	2	2,9	5,7	110
Total for FB&H	5061	1095	706	232	510	197	263	8064
RS	7670	1586	1005	130	424	319	262	11396
Total B&H	12731	2681	1711	362	934	516	525	19460

The leading crop in fruit growing in B&H is the plum (tab.4.). After the plum the second most spread fruit groups are apple and pear. Among the leading fruit crops the least grown is the peach. This is mainly because the regions in which peach thrives are limited and often can be found only in the south of the country.

Tab. 5. Grape production in BIH

Year	Area in ha	Grapevines in 1000		Production in tons	Yield per vine in kg
Period before the war (1990-1992)					
A) Private sector	3,426	18,127	13,896	16,835	1.21
B) State sector	2,286	5,089	4,231	13,286	3.14
Total	5,712	23,216	18,127	30,121	1.66
Period after the war (1995-1997)					
	*	6,469	6,231	12,442	2.00

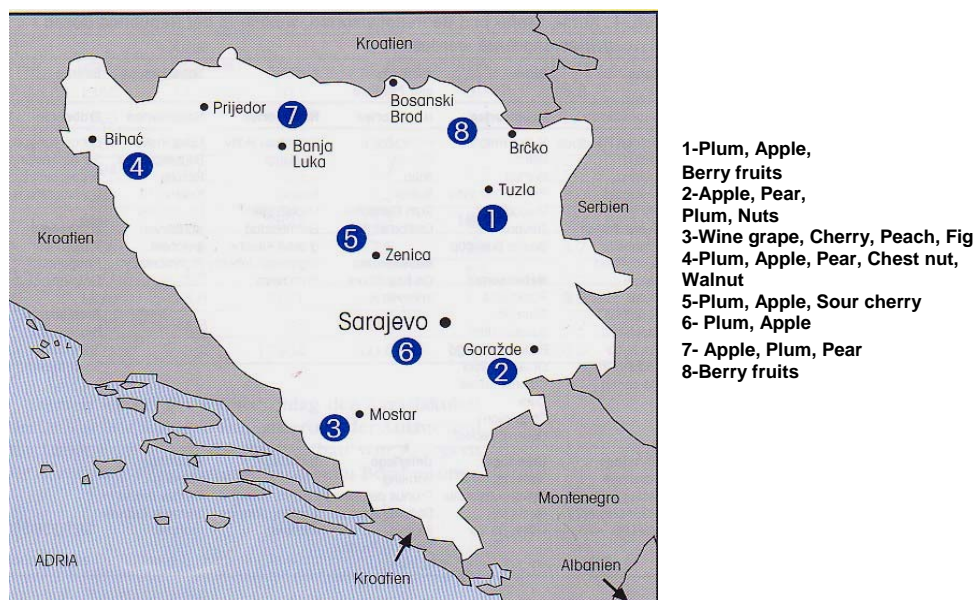
* after the war the vineyards that belonged to state sector were privatised

As can be seen from the table 5, the state played a significant role in grape production before the war. In the post war period the states role has diminished partly because of the privatization of vineyards although this process is not yet finished. The complete number of vines has been greatly reduced but the production has been maintained with a slight decline.

As with the peach production the grape growing has traditionally been limited to the south of the country, but in the last two years there have been evident tendency of spreading the grape production to the continental regions of B&H.

The most significant eight fruit and grape growing regions in B&H are more easily viewed in the following schematics.

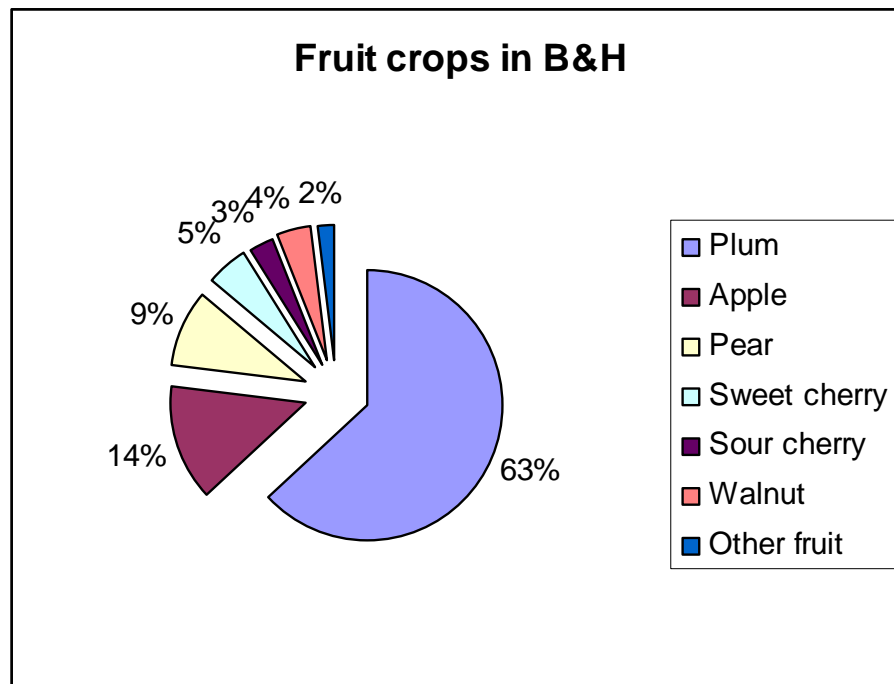
The eight most significant fruit and grape growing regions in B&H



As it is shown in the map above the most represented fruit crops in the northeast region (Tuzla) are plums, apple and berry fruits, dominantly strawberry and raspberry. In the Gorazde region apple, pear, plum and different nuts are mostly grown. The same structure of fruit crops can be found in the west region of Bihac, while in the furthest south region of the country (Mostar) the dominant crops are grape, cherry, peach and fig. Plum and apple followed by pear and sour cherry are the main fruit crops in the central regions of B&H (5,6 and 7). The cultivation and high production of berry fruits characterize the last region (8). These fruit crops (mainly strawberry, raspberry and blackberry) are also spreading in other regions (central, east and northeast) and gaining a strategic role in fruit production of B&H.

The following graphic shows in what percentage individual fruit crops are present in B&H.

Percentage of individual fruit crops present in B&H fruit production



As it has already been mentioned and can easily be seen from the pie chart above the most produced fruit crop is the plum. There is however a growing tendency toward switching from plum to apple and pear growing. One of the main reasons is the epidemic of Plum pox virus that has been present in the region for many years now. Old plum orchards are being eliminated and the land is being used to plant new apple and pear trees. Other fruit crops play an insignificant role in the present state but with a certain tendency of growth. The largest expansion can be observed in the production of berry fruits especially strawberry and raspberry. The increase in production is especially noticeable in northeast Bosnia. What is characteristic for this berry production is the high

level of technology being used which results in high yields and the ability of the farmers to further invest in expansion of their production. This trend is visible in the field but to which extent the progress in berry production has been made is hard to determine without further research.

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The production of seed material for the main agricultural crops is almost none existent, with the small exception of the potato. Most of the seed import is being made from the neighboring countries Croatia, Serbia and Montenegro, as well as from Slovenia, Italy and Netherlands.

Table 6. shows the list of the most significant seed importers for agricultural crops in B&H.

Tab. 6. The list of the most significant seed importers for agricultural crops in B&H

Name of the company	Location
Matecommerc d.o.o.	Ljubuški
Sjemenarna d.o.o.	Široki Brijeg
Poljoprema dd	Sarajevo
KWS	Bijeljina
Aktiv d.o.o.	Visoko
Danojević d.o.o	Banja Luka
Matey d.o.o.	Grude
Sjeme d.o.o.	Tuzla
Vino-Duhan-Voće PZ	Grude
Agricom d.o.o.	Sarajevo
ZP	Bijeljina
Agro-Lašva d.o.o.	Vitez
Semenarna BH d.o.o.	Sarajevo
Pan-agra d.o.o.	Široki Brijeg
NS	Novi Sad
Agropest d.o.o.	Gračanica
Manico I d.o.o.	Doboj
Drijeva d.o.o.	Čapljina
Dalmata d.o.o.	Čapljina

In order to get a better picture of the seed import made by the above-mentioned companies and their influence on the agriculture in B&H, a list is given of seed import made by Danojević d.o.o, a company from Banja Luka. On the list are the genotypes, which are imported as well as the amount of each seed genotype.

Tab. 7. The amount of seed imported by Danojević d.o.o Banja Luka

Crop	Genotype	Amount
Wheat	NS rana 5, Marija Sana, Žitarka, Krana	6,800 tons
Triticale	Trimeran, Noe, KG	1,600 tons
Barley	NS 313	1,600 tons
Maize	ZP 360 and other ZP hybrids	3,200 tons

The conclusion that can be reached by viewing the last two tables, especially if the present offer of the varieties for the main agricultural crops is taken in to the consideration, is that the domestic production of the seed material is purely symbolic. That means that the import presents the main source for reproductive material, especially the one from the neighboring countries.

The maize production list consists of hybrids from the following production companies: Bc institute from Zagreb, ZP hybrids from Zemun, Os hybrids from the institute Osjek, American Pioneer hybrids with representation in Zagreb, German KWS hybrids with representation in Belgrade and NS hybrids from Novi Sad. All new hybrids possess good resistance towards disease, pest and have all shown good endurance during dry spells. Most of them have proven themselves in micro-trials and can with certainty be recommended for the production and climate conditions that exist in B&H.

The varieties of wheat and barley, which are used in B&H agricultural production, are also from the variety list of neighboring countries. Wheat varieties from Croatia are following: Marija, Tina, Liberta, Sana, Zitarka. From SCG imported varieties are: Pobeda, Evropa 90 and NS early. Variety of Barley mostly imported from Croatia is Favorit, while from SCG mostly imported are NS 313, NS 525 and NS 519. In the flatlands there exists some wheat seed production for the farmers own needs, the same exists in the hill landscape for barley.

Production of potato for reproduction is present to a certain extent and some efforts are made to expand this production. Favorable agro-ecological condition present in B&H enables this production. In 2002 145,9 ha have been sown with seed potato, with yields of 13,6 t/ha which covers the need for 2-3% of the areas used for potato production. At the same time 7343 t seed potato has been imported which covers additional 12-15% while the rest of the land area used for potato production relies on seed material with low quality. Varieties mostly used are: Desire, Kennebec, Ostara, Lady Clair, Kondor and Agria.

Although minimal, some production of seeds for vegetable production is present in Tuzla region. In 2002 there was some production of vegetable seed material for the

cabbage variety Bijelinska (410 kg), pumpkin (237 kg) variety Beogradski, pea variety Little Pravonsalac (450 kg) and cucumber variety, Suncani potok (30 kg). Most genotypes used in the production have a great resistance towards disease and pest, but have low genetic potential for high yield.

Vegetable crops cultivated in B&H are not very diverse in either specie or variety (Tab.8.). Although there are good conditions for seed production for vegetable crops the vegetable production relies on the import of seed material. There are rarely any new varieties offered on the market, especially for greenhouse production. Import companies “Agricom” and “Sjemenarna” have a major share on the market and in 2002 they imported 4,000,000 bags of seed, 32 species and 68 varieties of vegetables. One more example is the company “Poljooprema” which managed to place on the market 24,000 kg of seed, with 20 species and 35 varieties.

Tab. 8. The most present vegetable varieties on B&H market

Species	Variety
Tomato	Mi-10F ₁ , Saint Piere Volovsko srce Saint marcano Marmande
Paprika	Šorokšari Kalifornijsko čudo Kurtovska kapija Rotund žuti Sivrija
Onion, red	Holandski žuti
Cabbage	Varaždinski Ditmar Futoški Tucana F ₁ Slava
Cucumber	Sunčani potok Delikates Pariški kornišon
Lettuce	Kristalka Ledenka Majska kraljica Nansen
Carrot	Nantes
Radish	Non plus ultra Saksa
Squash	Patisan bijeli okrugli Buča vrtna elita F ₁

Seed material for flowers and seedlings for decorative plants are mainly imported together with seed of other agricultural crops. More significant nurseries which produce reproductive material for these plants are in: Brčko, Sarajevo, Doboј, Srebrenik and Čapljina but they only cover under 20% of the needs on the local market.

The production of seedlings for fruit and grape growing can be seen in the Table 9. which also shows the capacities of the more significant nurseries in B&H:

Tab. 9. Production of fruit and grape seedlings in the more significant nurseries in B&H

Place	Amount		
	Fruit seedlings (apple, pear, plum etc.)	Berry fruit (strawberry, raspberry, blackberry etc.)	Grape vine
Srebrenik	350,000	200,000	
Mostar	30,000		50,000
Čelić		1,000,000	
Gradačac	45,000	300,000	
Banja Luka	100,000	300,000	
Goražde	30,000	200,000	
Laktaši		300,000	
Čapljina	30,000		120,000
Sapna		1,000,000	
D. Vakuf		400,000	
Trebinje	30,000		100,000
V. Kladuša		30,000	
Total	615,000	3,730,000	270,000

From the table above, one can see that the number of seedlings produced by the leading nurseries in B&H is over 600,000 fruit-tree seedlings. Together with large number of less significant nurseries, with much smaller production, the domestic production of seedlings cover only about 50 % of the needs. That is why the import of seedlings from the neighboring country is very dominant. The case with grape is even worse, where the domestic vine seedling production is far below the needs. The situation with berry fruit on the other hand is the complete opposite, where the production of reproduction material is sufficient for the domestic needs to the extent that there exists a certain export to USA, Germany, Canada and Italy.

For a better view, the structure of fruit species and varieties offered by the largest nursery in B&H, as well as the number of seedlings produced is presented in Table 10.

Tab. 10. Production of seedling material in d.o.o. «Voćni rasadnik Srebrenik»

Fruit species	Variety	Amount
Plum	Stenlej Renkloda Rut geršteter Kalifornijska plava Bilska rana Čačanska ljepotica Čačanska rodna Čačanska rana Čačanska najbolja	110,331
Apple	Crveni delišes Ajdared Jonagold Zlatni delišes Mucu Gloster Melroza Greni Smith Zl.»Klon B» Velspur Elstar Jonatan Diskaveri Džems griv Prima	135,632
Pear	Kaluđerka Grand šamp. Julsko zlato Gen. Leklerk Pasakrasana Santa Marija Trevuška Vilijamovka Butira Junska ljepotica Šampionka Duardova Huseinbegov. Abe Fetel Konferens	46,040
Cherry	Stela	

	Burlatova Đurđevka Bing	7,440
Apricot	Royal Mađar. naj	3,597
Roses		13,000
Quince	Leskovačka	1,790
Medlar	Domaća	881
Nut	Domaći mekušac	3,979
Strawberry	Honoja Korona Marmolada	150,000
Raspberry	Vilamet	50,000
Blackberry	Thonfree	3,000
Clonal rootstock	M9 M26 MM106 Quince MA	350,000

The greatest offer that can be found in this nursery is for apple and plum varieties (over 2/3), while the other fruits with the exception of pear are much less represented. Also, it is notable that the offered varieties are outdated and the introduction of new ones with the purpose of using them in production is rather limited.

Some of the newly introduced varieties, which are presently tested on field trials, are shown in Table 11.

Tab. 11. Newly introduced fruit varieties

Species	Introduced varieties
Apple	Gala, Gala Mundijal, Rojal gala, Brabur, Fuji, Nagafu, Pink Ledy
Plum	Hanita, Elena, Katinka, Top
Cherry	Celesta
Strawberry	Mis, Maja, Roxana, Medlein, Simphonia
Raspberry	Šoeneman, Tuleman, Autmn, Blis
Blackberry	Jumbo

Parallel to introduction of new varieties some efforts are made in trying to preserve the autochthon genotypes. Good examples of these efforts are three smaller nurseries which beside their normal production maintain and propagate these indigenous varieties in order to preserve some of the characteristics which they possess. The most important characteristics are resistance to disease, pests and ability to thrive on poor soils. Some of these varieties also have high sugar content in the fruit.

In Table 12 are listed some of the indigenous varieties that are grown in one of those nurseries.

Tab. 12. The list of most important autochthon varieties in a nursery in town Gradacac

Apple	Pear	Cherry	Plum
Senabija	Jeribasma	Mostarska alica	Dinka
Hajvanlija	Huseinbegovača	Karaašlama	Banjalučka bjelica
Prijedorska zelenika	Buzdohanlija	Kutjevačka ašlama	Velinka Brčanska (hodžička)
Petrovača	Kolačuša	Azijatka	Rana Dobojskarana
Šadička	Kantaruša		Miškovačka rana
Srebrenička	Mednica		Sitnica
Pamuklija	Brdenjača		Ružica
Crvenika	Begamuta		Kaurka
Pazarka	Carešnica		Loparka
Rebnjača	Karamanka		Prskulja
Bravina	Avraška		Slatkulja
Budimka	Batva		Smokvica
Cvjetača	Limunka		Bosanka
Čamilova			Korajka
Dobrić			
Futnaca			
Grehotulja			
Hodžička			
Ibtićeva			
Ibriska			
Jusufova			
Kanjiška			
Samoniklica			
Staklara			
Zuja			

The indigenous varieties given in the table above can in the future be used as an excellent material for selection purposes. In this manner the positive characteristics that exist in these plants will be incorporated in the next generation of modern varieties.

The need for new varieties and their desirable characteristics

After analyses of the present state of agricultural genetic resources the need for new varieties becomes apparent. It is now necessary to point out some general characteristics or desirable traits which the new genetic material must possess in order to have a positive impact on the agriculture in this country. There are also some necessary changes that need to be made in order to decrease the dependency B&H agriculture has on outside seed and seedling import.

The need for import of seed material for cereal and maize crops will remain dominant in the near future but there are some ways to diminish this dependence on outside sources for reproduction material. The need for import of seed potato can for instance be decreased by improving the technological level of the cultivation, importing varieties with greater reproductive abilities and yield, as well as reproducing the imported high quality material inside the country. These strategies would lead to use of domestic work labor and of B&H own land resources. In this way high quality soil that lays unused would be cultivated and produce.

Genetic material introduced, after being tested on field trials, would positively influence the yield, quality and resistance. Beside the somewhat outdated variety list that is in use right now, introduced material would become an important asset for higher yields in agricultural production in order to match those found in more developed countries. On the other hand, without the proper agro-technology to use in cultivation of high-yielding crops results cannot be favorable. Inadequate technology cannot be compensated by high genetic potential.

A key factor that is missing and without which all progress is slowed down to almost a stand still are the incomplete and poorly coordinated existing laws that concern these subjects. Among the most inadequate laws are those regulating the inheritance of the land, laws on plant protection, laws on introduction of new varieties and the law that regulates the control and use of GMO-s.

The dominant presence of outdated varieties is most obvious in fruit growing, so the process of changing the varieties in production needs to be accelerated and made more efficient. Special emphasis should be put on introduction of new varieties suitable for integral and organic agriculture (for example: apple variety topaz, raspberry variety autumn bliss). This means that together with the modernization of the conventional production there is a need for further introduction of organic agriculture.

In the present state the most notable of the problems in agricultural production is the unused potential of the conventional production. Beside the conventional agriculture, in the post war period there has also been a significant introduction of integral production particularly in the northeast region of the country. This innovation has so far found itself more applicable in fruit growing than in cereal, maize and vegetable production. So far the integral production has been limited to a smaller region of B&H but some efforts have been made in expanding to all agricultural regions of the country.

The fact, which all approaches to the agricultural production have in common, is the need for introduction of new varieties and elimination of production with outdated

varieties. This is also the aspect on which most of the work is being done at the moment. The desirable qualities that are sought are the resistant high-yielding varieties that are easily adapted to the different climate regions and soil types that exist in B&H.

Organic agriculture

The common conclusion that has been reached after a few years of practice is that the organic agriculture can find its place in B&H food production. As a country B&H does not possess large agricultural land areas and in quantity cannot compete with most European country. However, perhaps quantity can be replaced with quality. Food produced by organic agriculture has a higher market value, which can replace the large quantity of food with lower market value need for the survival of production. It naturally needs to be followed by organic cattle husbandry and organic seed production. Taking into consideration that intensive agriculture in B&H before the war was mainly present only in state owned farms and the usage of agro-chemicals according to FAOSTAT 2001 is less by 30 % than European average. This means that transformation to organic agriculture in rural regions does not require that many changes. The demand for organic products is in the constant grow all over the world, which means that the lack of technological advance in agriculture which exists in B&H can be viewed as a certain advantage in finding a market for food produced in that way. That kind of production would give healthy and high-priced products with the benefits of environmental preservation and higher living standard for farmers.

Newly introduced material will first of all have a positive impact on the conventional production and better use of domestic resources. The requirements for these new varieties in general are that they are not outdated. The varieties must also be high yielding, possess a high level of resistance towards disease, pest and rough ecological conditions. It is clear that raising the level of agricultural production will have a lasting positive impact on the standard of the population especially those people that are involved in agricultural production.

Possibility of GMO introduction

One of the major debates being led in the world right now concerns the GMO cultivations. The general views on GMO present in B&H farmers and society in general is very much similar to existing views in whole of the Europe. The common characteristics are lack of knowledge, unfounded fears and reliance on stereotypes.

The mentality of average farmers living and working in B&H is characterised by the resistance towards changes even if they mean technological advances. That is why the introduction of GMO cultivations in the production it self would come across many obstacles.

The public, that is to say consumer's views would also serve as a barrier, because of the general opinions that GMO's are potentially dangerous. The produced food even if it was cheaper would then have fewer buyers, which would mean less profit for the farmer.

Another economic aspect that needs to be taken in consideration is that the main characteristics of agriculture that benefit for instance organic agriculture would be a disadvantage for GMO cultivation. Low technological input together with small existing parcels of arable land would make GMO cultivation impractical and unprofitable.

Currently, a state level law is about to be passed which concerns the use of GMO (the law on food safety). The main goals of agriculture, as a strategic economic branch, being put up by the government is to produce enough food for the population and to have certain amount over for export. Except the quantity the quality of the produced food is also an issue. If the quality is seen to be organic products then the strategies will lead in that direction.

Even though there still are many questions concerning the advantages and disadvantages of GMO products, the consumers should be informed if a product contains GMO sequences and in which amount. After receiving that information the decision to buy or not to buy a certain GMO product should be left to the consumer. In order to require from a manufacturer to label their product, it is first necessary to form a laboratory able to determine the presence and amount of GMO sequences in the plants and animals. In this way all future buyers would be informed and the fear, often irrational would be avoided.

Conclusions

Conclusions that can be made from the final report are following:

- The cultivars and varieties used in B&H agricultural production are well adapted to the climate and soil conditions, but they are low yielding and outdated.
- B&H agricultural strongly relies on outside import of seed material for cereal, maize and vegetable production.
- Dependence on outside sources for reproduction material has a negative impact on the economy and diminishes the use of B&H own agricultural resources.
- The need for new varieties is highest in fruit growing production, where most of the grown varieties are completely outdated.
- The nurseries that sell seedlings to domestic farmers have a relative large seedling production, but their variety list is limited and outdated.
- The main desired characteristics of new varieties and cultivars are: high resistance to economically significant diseases and pests, resistance to rough ecological conditions (especially drought) and high genetic potential for yield.
- Introduction of new varieties and cultivars, which possess desirable traits, will lead to higher profits for farmers and further investments in agricultural production.
- Organic agriculture is certainly a worthwhile production in B&H, while GMO cultivations is not practical in the agricultural and psychological conditions that reign in this country.

