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2015

Creating Connections

# Fruit

INFORMATIONAL BOOKLET



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# FRUIT IN KOSOVO

Fruit production in Kosovo is considered a high opportunity sub-sector with great investment potential, focused on improved yields, select varieties and especially import substitution opportunities. Kosovo has a big fruit import market and therefore reflects a large potential for import substitution.

In terms of production capacities, the total planted area with top fruits is about 8,342 Ha, of which apples and plums have the highest share in terms of planted surface, comprising just under 50% of all planted land. They also account for the majority of annual fruit production. Other important fruits include pears and sour cherries. In recent years, 100 - 150 Ha of new orchards have been established annually, due to high interest among farmers. Also soft fruits (berries) have also been growing in importance in recent years, with 148 Ha of strawberry planted in 2013. Plantings of raspberries totalled 400 ha in 2015 with 1,500 tons of berries (all exported). Meanwhile, 751 Ha of table grapes were planted in 2013. The yields are excellent and most of the products are sold into foreign markets.

Typical fruit production in Kosovo is seasonal with a high proportion of sales to the fresh market in-season, leading to high levels of imported fruits especially out of season. Additionally, the reasons behind the high levels of imports are closely linked to the underutilization of available land, as well as the inadequate technologies used, including poor quality of seedlings and planting materials, poor pruning and thinning technology, and inadequate irrigation systems, despite the high availability of water resources. All this leads to sub-optimal yields.

Recent trends show that the fruit sector is developing fast and production capacities and yields are improving. Further, there have been major investments in storage capacities in recent years. There is a ready market for both fresh and processed fruits, both domestically and for export. Higher domestic production linked to storage capacities will smooth the domestic supply of fresh fruits, leading to import substitution, while also addressing increased demand from domestic processors whose capacities are underutilized by about 60%. In addition, export markets have started to develop in recent years, and the potential there is large, making investments in fruit production very attractive indeed.







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# FRUIT MARKET IN KOSOVO

Demand for fruit in the domestic market by far outweighs domestic production, especially outside the typical growing season. Estimated total annual consumption of fruit in Kosovo is about 145,000 tons. Out of this, domestic production is estimated at about 77,000 tons, while net imports are reported to be about 68,000 tons. In general, this provides for a general self-sufficiency rate of only 53%. The estimated total domestic market size is about 54 million Euros per year. This is in addition to the still-underdeveloped export markets, accounting for an additional 2.2 million Euros in 2013.

The domestic production of top fruits mostly consists of apples, plums, pears, and sour cherries, while the most cultivated soft fruits include wine and table grapes, strawberries and raspberries. The self-sufficiency ratios vary significantly based on the specific fruit, as presented in the following table for a select number of fruits, based on 2013 data.

Fruit	Total Consumption Quantity - tons/year	Net Imports - tons/year	Domestic production – tons/year	Self-sufficiency rate
<b>TOP FRUITS</b>				
Apples	29,914	13,128	16,786	56.1%
Pears	882.75	804.5	78.25	8.9%
Plums	24,736	303	24,433	98.8%
Table grapes	9,859	2,722.07	7,137	72%
<b>SOFT FRUITS</b>				
Strawberries	776	311	465	59.9%

Out of all the highest-volume fruits, there are huge opportunities for import substitution and great returns on investments in fruit production. In top fruits, the biggest potential based on the domestic market lies with apples, which has a huge market gap to fill of about 4.4 million Euros in import substitution only, not counting the potential for processing and exporting. Apples are closely followed by opportunities in watermelons, table grapes, peaches and pears.

In terms of soft fruits, most of the opportunities lie in the export markets, which, compared to Kosovo production capacities, are virtually limitless, while also serving a quickly growing local market.

Fruit	Total value of domestic market at farm prices in Euros	Value of domestic production at farm prices in Euros	Potential for import substitution in Euros
<b>TOP FRUITS</b>			
Apples	12,400,000	8,000,000	4,400,000
Pears	603,300	50.8	552,500
Plums	7,800,000	7,700,000	1,000,000
Table / Wine Grapes	6,950,000	5,780,000	1,170,000
<b>SOFT FRUITS</b>			
Strawberries	6,000,000	4,000,000	2,000,000

According to 2014 data, there are 67 processing firms for fruits and vegetables, which typically are engaged in processing both fruits and vegetables. Based on surveys, about half of the inputs are domestically supplied, while the remaining are imported. Active processing firms report that they currently utilize only 50% of their installed capacities, leaving room for a doubling of demand from the processing sector, not accounting for new market entrants and additional capacity investments.

According to research data from the Horticulture Project Kosovo (HPK, 2012), annually Kosovo imports around 28 million Euros in processed fruits. In addition, Kosovo exports about 3.5 million Euros in processed fruits. This shows that there is further market potential in processed fruits, which could further grow provided there is increased production and supply of fresh fruits.

The trade balance for most top fruits is negative during all seasons. With current production capacities there is considerable space for import substitution by increasing domestic production, with a potential additional annual market value of over 23 million Euros per annum.

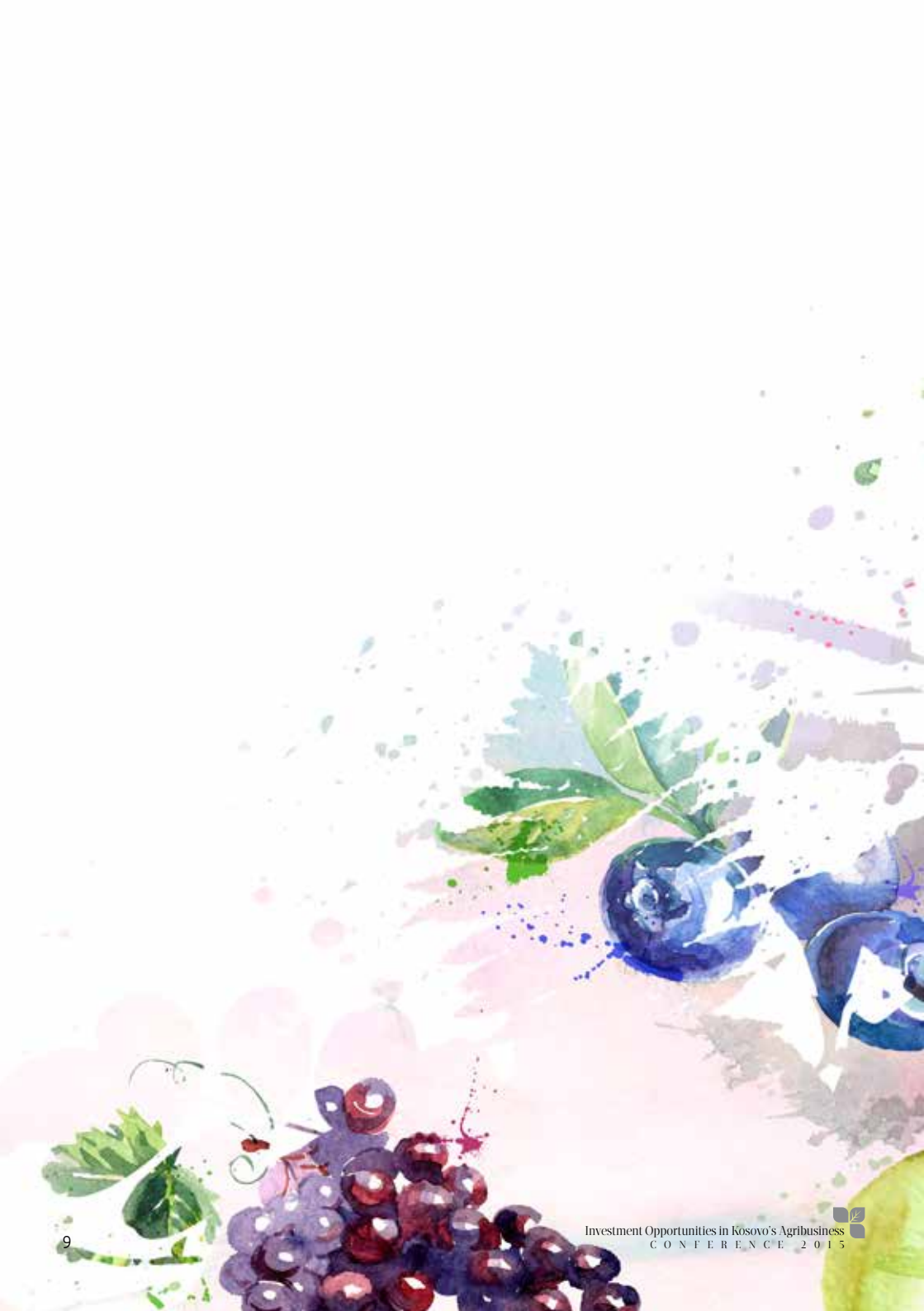
With more recently commercially introduced soft fruits, like raspberries, the trade balance is in fact positive, and in fact the export amount is only limited by production capacities in Kosovo. Having in mind the typical high yields secured in Kosovo and the low cost of production, the export potential for soft fruits is, again, virtually limitless.

Data show that all of the major imported fruits are also grown in Kosovo, reflecting the large potential for import substitution.

Annual Trade Balance – Main Fruit Crops in Euro							
	2007	2008	2009	2010	2011	2012	2013
Apples	-2,356,013	-2,853,305	-2,977,051	-3,445,168	-3,320,589	-4,113,120	-4,413,228
Blueberries	<b>602,040</b>	<b>580,927</b>	<b>122,265</b>	<b>497,498</b>	<b>1,389,680</b>	<b>1,030,263</b>	<b>879,673</b>
Chestnuts	<b>48,006</b>	<b>250,389</b>	<b>17,313</b>	-50,603	-54,475	-74,347	31,952
Strawberry	-74,552	-134,106	-132,089	-194,035	-151,429	-28,809	-170,947
Table Grapes	-801,779	-954,364	-1,191,278	-1,247,871	-1,474,323	-845,762	-1,169,836
Watermelon	-1,876,044	-1,993,076	-2,230,366	-2,261,938	-2,193,676	-1,845,525	-2,245,474
Annual Trade Balance – All Fruit Crops							
All Fruit	-13,781,902	-16,201,261	-19,916,378	-21,743,895	-18,518,081	-19,878,964	-23,249,449







# THE FRUIT VALUE CHAIN



## Advisors

Agriculture Extension Service, Economic Analysis Unit, RECURA AGRO CENTER, Rahoveci Institute, Univeristy of Pristina - Agriculture Faculty, KFVA, KIA, "Ferma Ime" portal, Kosovo Weather Forecast Institute, Sara dhe Meti, Agrovet, RDC, IADK, KDC.

## Input Dealers

Vinex, Jonathan, Fidanishtja Kashice, Agrodrini, N.T.P. Dredhza, Fidanishtja e Godancit, Fitofarma, Agrounion, Yara, OSA Termosistem, Agropharma, Yaprak, Eling, Pegasus, Frigoterm, APC, Plant Kosova, Bytyqi Nursery, Fidanishta Duhanaj Nursery, Rendimenti, Rimida, AgroCoop, Agroserra, HortiCoop, Dinamanti Nursery, Haxhijaha, TrePharm, EraMed, Fidanishta Koretin, Agrimatco.

## Collection Centers / Large buyers

Peme e Perime te Kosoves (Fruits and Vegetables Processors of Kosovo, PePeKo), Koral, V. Kelmendi, Stone Castle, ETC, Agrocelina, Elkos Group, AskFoods, MOEA, Agro Fresh, ABI Progress, Eurofood, Mix Product, MELI-I, KB Krusha, Kovraga, Consumer association "Konsumatori", Eurofruti, Fungo FF, AgroALBI, Fresh Fruits, APC, Hit Flores, Scardus, N1Art.

## Service Providers

Pro Credit Bank, Raiffeisen Bank, TEB Bank, NLB, Economic Bank and BKT, Association for Finance and Accounting Services, RECURA, KIESA, Sigal Insurance Company, EDI Consulting Company, FINCA, Advance Global Capital, KEP, Investment Promotion Agency, CFF



### Farmers / Growers

Heron&Adea, Plant Kosova, Action for Revitalization, Speed, Agro Juniku Co., APC Company, Mjedra e Kosovës, Mjedra e Llapit', Agro Red Gold, Sarske Maline, Duka, Blue Gold Association, DST Product, Agro Meti, AMA, MDJ, AgroProduct, Agrovizioni, Agrocelina, MeAgro, Tellos, Agrounioni, Fresikimi, MOEA, ASK FOODS, Mamusha, Pema, UVB, Fruit, Agroplant, Mogilla, BioBuzmi, BSHBK, Asociacoi i Pentareve te Kosoves, Ratishi, Stone Castle, Agrokor, Saturni, Molla nga Dardana, Pentaria, Kalifornia, Pema-De, Freskia, Fresh Fruit.



### Retail and local markets

Viva Fresh, Super Viva, ETC, Albi, Tregu i ri i gjelbert, Extra Frutti, Ask Foods, Swiss Diamond Hotel, Emerald Hotel, InterEX, Maxi, QTA Arjeta, Emona, Agmia, Meridian, Abi Center, Oaza Braha impex, Fatosi Com dhe Fresh Fruits.

### Large processors / aggregators

Peme e Perime te Kosoves (Fruits and Vegetables Processors of Kosovo, PePeKo), V. Kelmendi, Stone Castle, ETC, Agrocelina, Elkos Group, ASK Foods, MOEA, Agro Fresh, ABI Progress, Eurofood, Mix Product, MELI-I, Bashkimi, Koral, Etlinger, Apetiti, Kovraga, Consumer association "Konsumatori", Eurofruti, Fungo FF, AgroALBI.

### Wholesalers and Distributors:

Osman Fejza, Gazi, Rifat Kameri, Xhevat Zymeri, Remzi Makolli, Granit Krasniqi dhe Dardan Jupolli (Fatosi com).

# INVESTMENT CASE FOR FRUITS

The following sections present a typical investment case for several of the main fruits with the greatest market potential.

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The investment cases presented below are calculated on a per-hectare basis and represent an illustration of investments required, operational costs, labor effort, output and sales, in the process analyzing the investment case for each crop.

The cases presented are based on typical years and natural conditions. Input prices as well output yields and prices depend on a number of factors, including market developments and inputs and care provided by the investor. No liability for the authors can be inferred from the following calculations. The presented cases are for illustrational purposes only with the intention of providing an indication for the investment opportunity.





# APPLES

## INPUTS

### INVESTMENTS REQUIRED

Investments	Total
Soil analyses	€ 30
Ploughing and harrowing	€ 600
Irrigation	€ 1,300
Manure	€ 600
Fertilizers	€ 650
Fencing	€ 1,200
Seedlings - feathered plants	€ 14,581
Spraying	€ 190
Small equipment	€ 250
Transportation	€ 500
Anti-hail net system	€ 20,000
<b>TOTAL INVESTMENTS REQUIRED</b>	<b>€ 39,901</b>

### LABOR COSTS

Labor Costs	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6-21
Harvesting Cost	€ 625	€ 2,125	€ 2,500	€ 2,500	€ 2,500	€ 2,500
<b>TOTAL LABOR COSTS</b>	<b>€ 625</b>	<b>€ 2,125</b>	<b>€ 2,500</b>	<b>€ 2,500</b>	<b>€ 2,500</b>	<b>€ 2,500</b>

### OPERATIONAL COSTS

Cost Category	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6-21
Irrigation	€ 400	€ 400	€ 400	€ 400	€ 400	€ 400
Fertilizers	€ 800	€ 1,200	€ 1,200	€ 1,200	€ 1,200	€ 1,200
Spraying	€ 350	€ 450	€ 500	€ 600	€ 600	€ 600
Pruning	€ 750	€ 850	€ 1,000	€ 1,500	€ 1,800	€ 1,800
Marketing	€ 1,042	€ 3,541	€ 4,166	€ 4,166	€ 4,166	€ 4,166
Transportation	€ 250	€ 500	€ 700	€ 700	€ 700	€ 700
Investment Amortization (21 years)	€ 1,900	€ 1,900	€ 1,900	€ 1,900	€ 1,900	€ 1,900
<b>TOTAL ANNUAL COSTS</b>	<b>€ 5,492</b>	<b>€ 8,841</b>	<b>€ 9,866</b>	<b>€ 10,466</b>	<b>€ 10,766</b>	<b>€ 10,766</b>



# OUTPUTS AND RETURNS

## SALES AND PROFIT

Yield per hectare	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6-10
<b>TOTAL YIELD</b>	<b>20,830</b>	<b>70,822</b>	<b>83,320</b>	<b>83,320</b>	<b>83,320</b>	<b>83,320</b>
Output 1st Class	12,498	49,575	58,324	58,324	58,324	58,324
Output 2nd Class	8,332	21,247	24,996	24,996	24,996	24,996

Proforma Profit and Loss Statement	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6-10
<b>SALES</b>						
Quantity Output 1st class apple	12,498	49,575	58,324	58,324	58,324	58,324
Quantity Output 2nd class apple	8,332	21,247	24,996	24,996	24,996	24,996
Price 1st class apple	€ 0.52	€ 0.52	€ 0.52	€ 0.52	€ 0.52	€ 0.52
Price 2nd class apple	€ 0.30	€ 0.30	€ 0.30	€ 0.30	€ 0.30	€ 0.30
<b>TOTAL SALES</b>	<b>€ 8,999</b>	<b>€ 32,153</b>	<b>€ 37,827</b>	<b>€ 37,827</b>	<b>€ 37,827</b>	<b>€ 37,827</b>

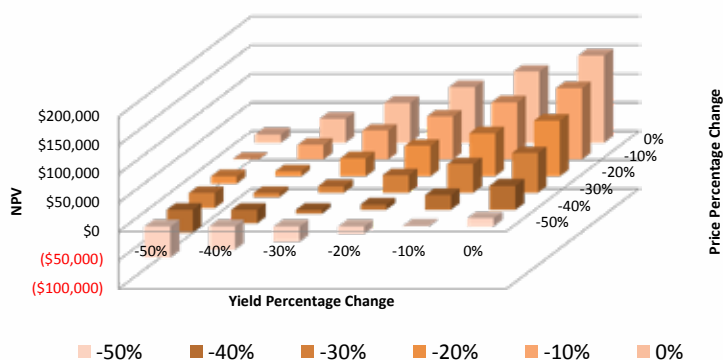
<b>TOTAL ANNUAL COSTS</b>	<b>€ 6,116</b>	<b>€ 10,966</b>	<b>€ 12,366</b>	<b>€ 12,966</b>	<b>€ 13,266</b>	<b>€ 13,266</b>
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<b>NET PROFIT BEFORE TAX</b>	<b>€ 2,882</b>	<b>€ 21,187</b>	<b>€ 25,462</b>	<b>€ 24,862</b>	<b>€ 24,562</b>	<b>€ 24,562</b>
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## RETURN ON EQUITY

An optimal case of investing in apple orchards, accounting for a required investments of 39,901 Euro, including discounting cost of capital of 20% results in an average annual return on equity of 56%. The graph below shows the Net Present Value profile of the investment in regard to changes in price and quantity sold.

### Apple High Density NPV vs Yield & Price



# BLUEBERRIES

## INPUTS

### INVESTMENTS REQUIRED

Investments	Total
Labor Establishment	€ 797
Machinery services&transport	€ 600
Irrigation	€ 2,600
Manure	€ 1,250
Mulch	€ 750
Fertilizer	€ 165
Plants	€ 10,354
Soil amendment	€ 2,200
Small equipment	€ 250
<b>TOTAL INVESTMENTS REQUIRED</b>	<b>€ 18,966</b>

### OPERATIONAL COSTS

Cost Category	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6-10
Machinery services&transport	€ 320	€ 320	€ 760	€ 1,736	€ 1,736	€ 1,736
Irrigation	€ 650	€ 650	€ 650	€ 650	€ 650	€ 650
Mulch	€ 375	€ 375	€ 375	€ 375	€ 375	€ 375
Fertilizer	€ 265	€ 265	€ 265	€ 265	€ 265	€ 265
Pesticides	€ 73	€ 193	€ 586	€ 586	€ 586	€ 586
Small equipment	€ 120	€ 120	€ 120	€ 120	€ 120	€ 120
Packaging	€ -	€ -	€ 1,550	€ 3,100	€ 4,640	€ 6,180
Marketing	€ -	€ -	€ 523	€ 1,052	€ 1,420	€ 1,526
Investment Amortization (15 years)	€ 1,264	€ 1,264	€ 1,264	€ 1,264	€ 1,264	€ 1,264
<b>TOTAL OPERATIONAL COSTS</b>	<b>€ 3,067</b>	<b>€ 3,187</b>	<b>€ 6,093</b>	<b>€ 9,148</b>	<b>€ 11,056</b>	<b>€ 12,702</b>

### LABOR COSTS

Labor Costs	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6-10
Total yield	€ -	€ -	4,608	8,064	10,368	11,520
Harvesting kg per day	€ 48	€ 48	€ 48	€ 48	€ 48	€ 48
Labor days	€ 39	€ 32	€ 38	€ 38	€ 38	€ 38
Labor cost per day	€ 15	€ 15	€ 15	€ 15	€ 15	€ 15
<b>TOTAL LABOR COST</b>	<b>€ 2,455</b>	<b>€ 1,764</b>	<b>€ 4,587</b>	<b>€ 6,892</b>	<b>€ 9,781</b>	<b>€ 11,485</b>

# OUTPUTS AND RETURNS

## YIELD PER HECTARE

Yield per hectare	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6-10
Plants per hectare	2,400	2,400	2,400	2,400	2,400	2,400
Yield per plant (kg)	-	-	2	3	4	5
TOTAL YIELD	-	-	4,608	8,064	10,368	11,520
1st class blueberries	-	-	3,686	6,451	8,294	9,216
2nd class blueberries	-	-	922	1,613	2,074	2,304

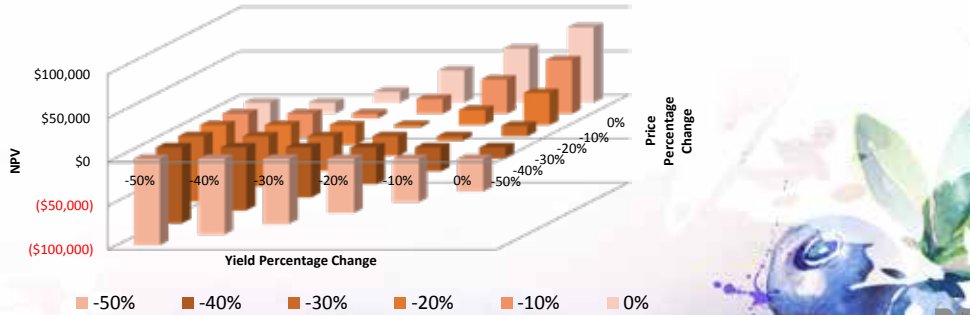
## SALES AND PROFIT

Proforma Profit and Loss Statement	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6-10
SALES						
Quantity 1st class blueberries	-	-	3,686	6,451	8,294	9,216
Quantity 2nd class blueberries	-	-	922	1,613	2,074	2,304
Price 1st class blueberries	€ 4.20	€ 4.20	€ 4.20	€ 4.20	€ 4.20	€ 4.20
Price 2nd class blueberries	€ 1.20	€ 1.20	€ 1.20	€ 1.20	€ 1.20	€ 1.20
TOTAL SALES	€ -	€ -	€ 16,589	€ 29,030	€ 37,325	€ 41,472
TOTAL ANNUAL COSTS						
	€ 5,522	€ 4,951	€ 10,680	€ 16,040	€ 20,837	€ 24,187
NET PROFIT BEFORE TAX	€ (5,522)	€ (4,951)	€ 5,908	€ 12,990	€ 16,487	€ 17,285

# RETURN ON EQUITY

Return on Investment for an optimal case of investing in blueberries, when accounting for the initial investment of 18,966 Euros, including discounting for cost of capital of 20%, results in a yearly average of 44%. The table below shows the change in NPV corresponding to percentage change in price and quantity sold.

## BLUEBERRIES NPV VS YIELD & PRICE



# RASPBERRIES

## INPUTS

### INVESTMENTS REQUIRED

Investments	Amount
Ploughing and harrowing	€ 600
Irrigation	€ 1.200
Manure	€ 600
Fertilizer	€ 560
Plant supports	€ 2.000
Raspberry plants	€ 5.000
Spraying	€ 190
Small equipment	€ 250
<b>TOTAL INVESTMENTS REQUIRED</b>	<b>€ 10.400</b>

### OPERATIONAL COSTS

Operational costs	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6-10
Manure	€ 600	€ 600	€ 600	€ 600	€ 600	€ 600
Fertilizer	€ 560	€ 560	€ 560	€ 560	€ 560	€ 560
Spraying	€ 190	€ 190	€ 190	€ 190	€ 190	€ 190
Small equipment				€ 250		
Investment Amortization (15 years)	€ 693	€ 693	€ 693	€ 693	€ 693	€ 693
<b>TOTAL COST</b>	<b>€ 2,043</b>	<b>€ 2,043</b>	<b>€ 2,043</b>	<b>€ 2,293</b>	<b>€ 2,043</b>	<b>€ 2,043</b>

### LABOR COSTS

Labor Costs	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6-10
Labor costs	€ 1,680	€ 3,150	€ 4,500	€ 4,500	€ 4,500	€ 4,500
Weed control 60 day	€ 900	€ 900	€ 900	€ 900	€ 900	€ 900
<b>TOTAL LABOR COSTS</b>	<b>€ 2,580</b>	<b>€ 4,050</b>	<b>€ 5,400</b>	<b>€ 5,400</b>	<b>€ 5,400</b>	<b>€ 5,400</b>



# OUTPUTS AND RETURNS

## YIELD PER HECTARE

Yield per hectare	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6-10
plants per ha	8,000	15,000	20,000	20,000	20,000	20,000
yield per plant (kg)	0.7	0.7	0.75	0.75	0.75	0.75
Output 1st Class	80%	70%	80%	80%	80%	80%
Output 2nd Class	20%	30%	20%	20%	20%	20%
yield per ha class 1	4,480	7,350	12,000	12,000	12,000	12,000
yield per ha class 2	1,120	3,150	3,000	3,000	3,000	3,000

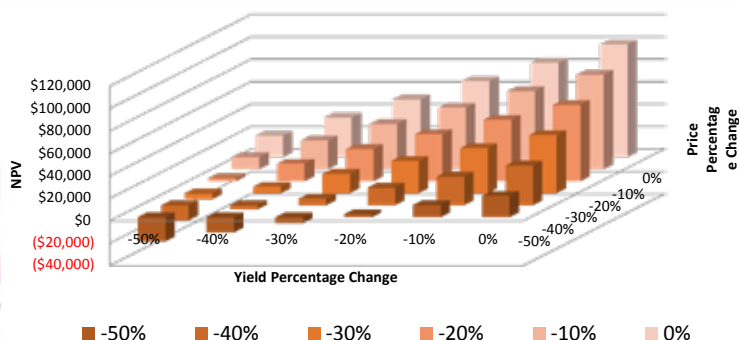
## SALES AND PROFIT

Proforma Profit and Loss Statement	Price	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6-10
Yield per ha class 1 raspberry		4,480	7,350	12,000	12,000	12,000	12,000
Yield per ha class 2 raspberry		1,120	3,150	3,000	3,000	3,000	3,000
Price 1st class raspberry	1.6						
Price 2nd class raspberry	1.1						
<b>SALES</b>		<b>€ 8,400</b>	<b>€ 15,225</b>	<b>€ 22,500</b>	<b>€ 22,500</b>	<b>€ 22,500</b>	<b>€ 22,500</b>
Total costs		€ 4,623	€ 6,093	€ 7,443	€ 7,693	€ 7,443	€ 7,443
<b>NET PROFIT BEFORE TAX</b>		<b>€ 3,777</b>	<b>€ 9,132</b>	<b>€ 15,057</b>	<b>€ 14,807</b>	<b>€ 15,057</b>	<b>€ 15,057</b>

## RETURN ON EQUITY

The optimal case of investing in raspberries, accounting for an investment of 11,200 Euros, yields a whopping 108% yearly average return on equity. With a cost of capital of 20%, the forecasted Net Present Value for a raspberry investment is 100,554 Euros. Below you will find the change in NPV depending on percentage change in price and quantity sold.

## RASPBERRY NPV VS PRICE & YIELD



# STRAWBERRIES

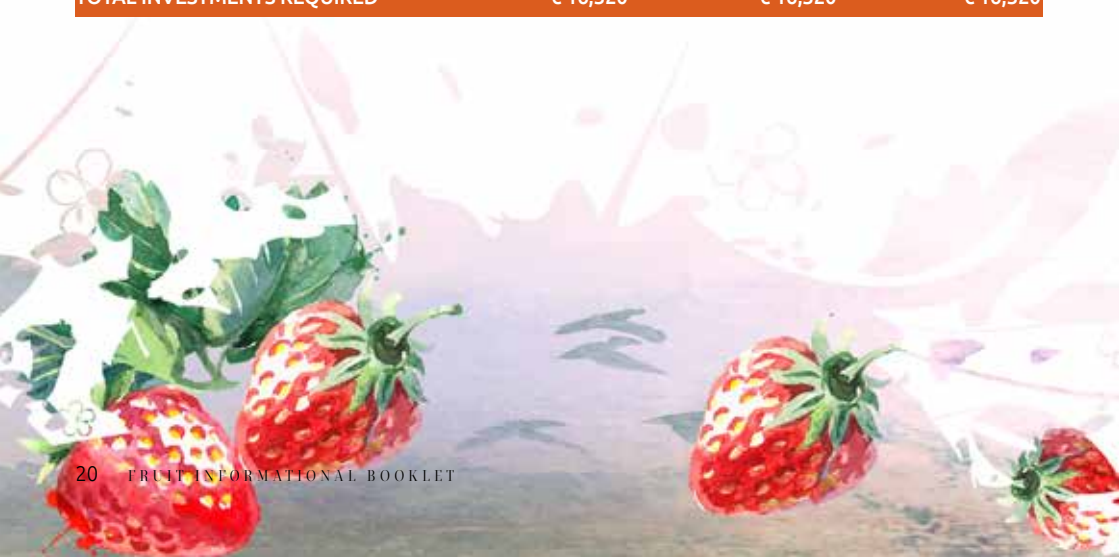
## INPUTS

### INVESTMENTS REQUIRED

Investments	Total
Runners	€ 10,000
Ploughing	€ 120
Harrowing	€ 60
Manuring	€ 100
Preparation of beds	€ 100
Planting	€ 100
<b>TOTAL INVESTMENTS REQUIRED</b>	<b>€ 10,480</b>

### OPERATIONAL AND LABOR COSTS

Operational Costs	Year 1	Year 2	Year 3
Plastic mulch	€ 1,224	€ 1,224	€ 1,224
Fertilizer kristalon	€ 900	€ 900	€ 900
Fertilizer NPK	€ 128	€ 128	€ 128
Pesticide	€ 300	€ 300	€ 300
Labor	€ 4,800	€ 4,800	€ 4,800
Irrigation	€ 1,345	€ 1,345	€ 1,345
Transport	€ 130	€ 130	€ 130
Packaging	€ 3,500	€ 3,500	€ 3,500
Advice	€ 500	€ 500	€ 500
Investment amortization	€ 3,493	€ 3,493	€ 3,493
<b>TOTAL INVESTMENTS REQUIRED</b>	<b>€ 16,320</b>	<b>€ 16,320</b>	<b>€ 16,320</b>





# OUTPUTS AND RETURNS

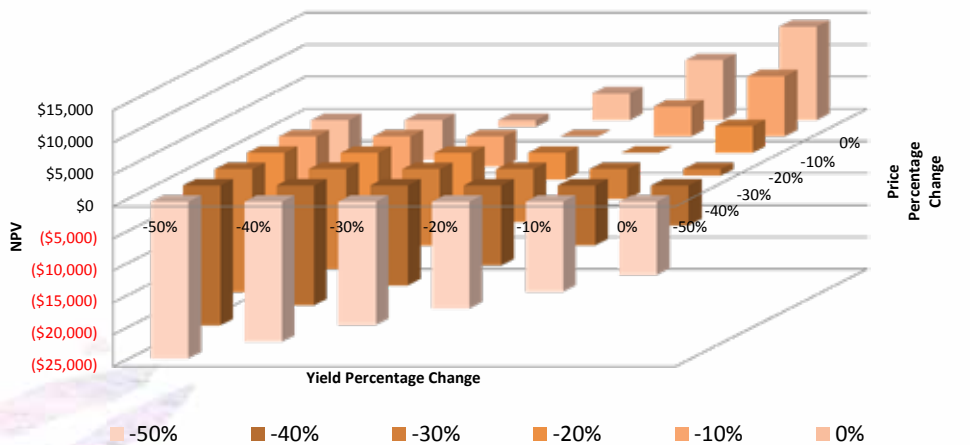
## YIELD PER HECTARE

Yield per Hectare	Year 1	Year 2	Year 3
Strawberries Kg	25,000	20,000	15,000
Price	€ 1.2	€ 1.2	€ 1.2
<b>TOTAL SALES</b>	<b>€ 30,000</b>	<b>€ 24,000</b>	<b>€ 18,000</b>
<b>TOTAL COST</b>	<b>€ 16,320</b>	<b>€ 16,320</b>	<b>€ 16,320</b>
<b>NET PROFIT</b>	<b>€ 13,680</b>	<b>€ 7,680</b>	<b>€ 1,680</b>

## RETURN ON INVESTMENT

Considering an optimal Investment case in strawberries, accounting for an investment of 10,480 Euros and a cost of capital of 20%, the investment results in a 107% return on investment. The graph below shows the NPV of this investment as price and quantity decrease by the respective percentages on the axis.

## STRAWBERRIES NPV VS YIELD & PRICE



# TABLE GRAPES

## INPUTS

### INVESTMENTS REQUIRED

Investments	Total
Machinery services	€ 940
Irrigation	€ 2,600
Manure	€ 1,250
Fertilizer	€ 383
Lyre Support system	€ 7,514
Plants	€ 5,000
Small equipment	€ 350
Labor	€ 167
<b>TOTAL INVESTMENT</b>	<b>€ 18,204</b>

### OPERATIONAL COSTS

Operational costs	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6-10
Machinery services	€ 480	€ 960	€ 1,115	€ 1,115	€ 1,115	€ 1,115
Irrigation	€ 450	€ 450	€ 450	€ 450	€ 450	€ 450
Manure	€ -	€ -	€ 600	€ -	€ -	€ 600
Fertilizer	€ 270	€ 270	€ 270	€ 354	€ 354	€ 354
Pesticides	€ 324	€ 462	€ 462	€ 462	€ 462	€ 462
Small equipment	€ -	€ -	€ -	€ 350	€ -	€ -
String	€ 24	€ 48	€ 48	€ 48	€ 48	€ 48
Packaging	€ -	€ 5,499	€ 7,332	€ 9,165	€ 9,165	€ 9,165
Marketing	€ -	€ 640	€ 826	€ 1,145	€ 1,180	€ 1,120
Investment Amortization (15 Years)	€ 1,214	€ 1,214	€ 1,214	€ 1,214	€ 1,214	€ 1,214
<b>TOTAL OPERATIONAL COST</b>	<b>€ 2,762</b>	<b>€ 9,543</b>	<b>€ 12,317</b>	<b>€ 14,303</b>	<b>€ 13,988</b>	<b>€ 14,528</b>

### LABOR COSTS

Labor Costs	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6-10
Total yield	-	29,997	39,996	49,995	49,995	49,995
Harvesting kg per day	€ 300	€ 300	€ 300	€ 300	€ 300	€ 300
Labor days	€ -	€ 100	€ 133	€ 167	€ 167	€ 167
Labor cost per day	€ 15	€ 15	€ 15	€ 15	€ 15	€ 15
Establishment Labor Days	€ 585	€ 480	€ 885	€ 885	€ 885	€ 885
<b>TOTAL LABOR COST</b>	<b>€ 585</b>	<b>€ 1,980</b>	<b>€ 2,885</b>	<b>€ 3,385</b>	<b>€ 3,385</b>	<b>€ 3,385</b>

## OUTPUTS AND RETURNS

### YIELD PER HECTARE

Labor Costs	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6-10
Plants per ha	3,333	3,333	3,333	3,333	3,333	3,333
Yield per plant (kg)	-	9	12	15	15	15
Output 1st Class	60%	80%	80%	80%	80%	80%
Output 2nd Class	40%	20%	20%	20%	20%	20%
yield per ha class 1	-	23,998	31,997	39,996	39,996	39,996
yield per ha class 2	-	5,999	7,999	9,999	9,999	9,999

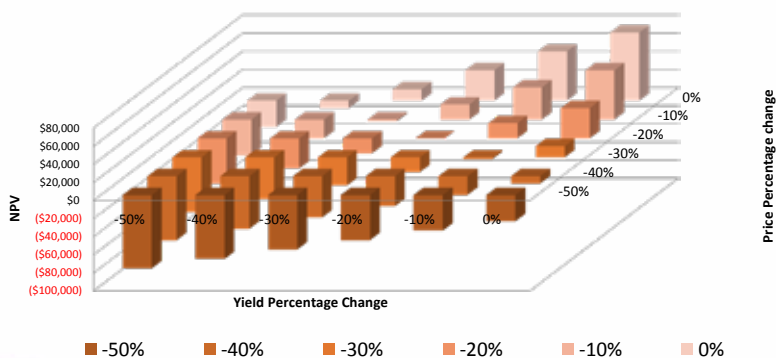
### SALES AND PROFIT

Proforma Profit and Loss Statement	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6-10
Sales	€ -	€ 18,478	€ 24,638	€ 30,797	€ 30,797	€ 30,797
Total annual costs	€ 3,347	€ 11,523	€ 15,202	€ 17,688	€ 17,373	€ 17,913
<b>NET PROFIT BEFORE TAX</b>	<b>€ (3,347)</b>	<b>€ 6,956</b>	<b>€ 9,436</b>	<b>€ 13,109</b>	<b>€ 13,424</b>	<b>€ 12,884</b>

## RETURN ON INVESTMENT

The average return on investment for an optimal case of investing in table grapes, when accounting for the investment required of 18,204 Euros, is 54.70%. Considering optimal parameters, including a cost of capital of 20%, table grapes yield an NPV of 75,132 Euros. The graph below shows NPV values corresponding to percentage changes of initial price and quantity sold.

### GRAPES NPV VS YIELD & PRICE



# SOUR CHERRIES

## INPUTS

### INVESTMENTS REQUIRED

Investments	Total
Soil analyses	€ 30
Plowing and harrowing	€ 600
Fertilizers	€ 650
Seedlings	€ 1,999
Spraying	€ 190
Small equipment	€ 120
Transportation	€ 250
<b>TOTAL INVESTMENTS REQUIRED</b>	<b>€ 3,839</b>

### LABOR COSTS

Labor Costs	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6-21
Harvesting Cost	€ -	€ 533	€ 1,250	€ 1,250	€ 1,250	€ 1,250
<b>TOTAL LABOR COST</b>	<b>€ -</b>	<b>€ 533</b>	<b>€ 1,250</b>	<b>€ 1,250</b>	<b>€ 1,250</b>	<b>€ 1,250</b>

### OPERATIONAL COSTS

Operational costs	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6-21
Fertilizers	€ 600	€ 310	€ 310	€ 310	€ 310	€ 310
Spraying	€ 350	€ 450	€ 450	€ 450	€ 450	€ 450
Pruning	€ 200	€ 200	€ 200	€ 200	€ 200	€ 200
Marketing	€ -	€ 267	€ 300	€ 300	€ 300	€ 300
Transportation	€ 250	€ 500	€ 700	€ 700	€ 700	€ 700
Investment Amortization (15 years)	€ 256	€ 256	€ 256	€ 256	€ 256	€ 256
<b>TOTAL ANNUAL COSTS</b>	<b>€ 1,656</b>	<b>€ 1,982</b>	<b>€ 2,216</b>	<b>€ 2,216</b>	<b>€ 2,216</b>	<b>€ 2,216</b>



# OUTPUTS AND RETURNS

## SALES AND PROFIT

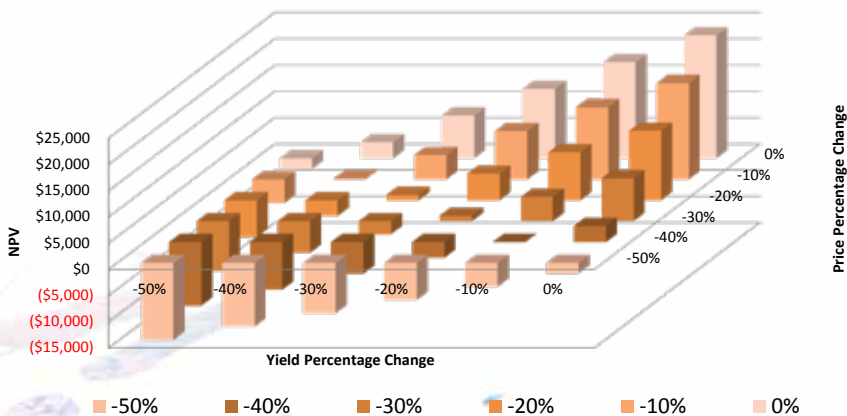
Yield per hectare	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6-21
TOTAL YIELD	-	5,331	12,495	12,495	12,495	12,495
Output 1st Class	-	5,331	12,495	12,495	12,495	12,495

Proforma Profit and Loss Statement	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6-10
SALES						
Quantity Output 1st class sour cherries	-	5,331	12,495	12,495	12,495	12,495
Price 1st class sour cherries	€ 0.60	€ 0.60	€ 0.60	€ 0.60	€ 0.60	€ 0.60
TOTAL SALES	€ -	€ 3,199	€ 7,497	€ 7,497	€ 7,497	€ 7,497
TOTAL ANNUAL COSTS	€ 1,656	€ 2,516	€ 3,465	€ 3,465	€ 3,465	€ 3,465
NET PROFIT BEFORE TAX	€ (1,656)	€ 683	€ 4,032	€ 4,032	€ 4,032	€ 4,032

## RETURN ON INVESTMENT

An optimal case of investing in sour cherries, accounting for the required investments of 3,839 Euros, including a discounting for cost of capital of 20%, reveals an average return of investment of 72% yearly. The graph below shows the Net Present Value profile when changes to price and yield are applied.

## SOUR CHERRY NPV VS YIELD & PRICE



# WALNUTS

## INPUTS

### INVESTMENTS REQUIRED

Investments	Total
Packagign	€ 200
Soil analyses	€ 30
Ploughing and harrowing	€ 600
Irrigation (Water & Labor)	€ 450
Manure	€ 450
Fertilizers	€ 650
Fencing	€ 2,100
Seedlings	€ 5,200
Spraying	€ 153
Small equipment	€ 120
Transportation	€ 500
Anti hail net system	€ -
<b>TOTAL INVESTMENTS REQUIRED</b>	<b>€ 10,453</b>

### LABOR COSTS

Labor Costs	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6-21
Harvesting kg per day	-	-	80	130	261	783
<b>TOTAL LABOUR COSTS</b>	<b>€ -</b>	<b>€ -</b>	<b>€ 80</b>	<b>€ 130</b>	<b>€ 261</b>	<b>€ 783</b>

### OPERATIONAL COSTS

Operational costs	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6-21
Fland cultivation	€ 300	€ 300	€ 300	€ 300	€ 300	€ 300
Irrigation (Water & Labor)	€ 175	€ 175	€ 175	€ 175	€ 175	€ 175
Fertilizers	€ 600	€ 400	€ 310	€ 310	€ 310	€ 310
Spraying	€ 350	€ 150	€ 150	€ 230	€ 230	€ 230
Pruning	€ 320	€ 320	€ 320	€ 320	€ 320	€ 320
Marketing	€ -	€ -	€ 300	€ 300	€ 300	€ 300
Transportation	€ 500	€ 500	€ 500	€ 500	€ 500	€ 500
Investment Amortization (21 years)	€ 498	€ 498	€ 498	€ 498	€ 498	€ 498
<b>TOTAL ANNUAL COSTS</b>	<b>€ 2,743</b>	<b>€ 2,343</b>	<b>€ 2,553</b>	<b>€ 2,633</b>	<b>€ 2,633</b>	<b>€ 2,633</b>



# OUTPUTS AND RETURNS

## SALES AND PROFIT

Yield per hectare	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6-21
TOTAL YIELD	-	-	1,225	2,000	4,000	12,000
Output 1st Class	-	-	1,225	2,000	4,000	12,000

Proforma Profit and Loss Statement	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6-21
SALES						
Quantity Output Walnuts	-	-	1,225	2,000	4,000	12,000
Price	€ 2.00	€ 2.00	€ 2.00	€ 2.00	€ 2.00	€ 2.00
TOTAL SALES	€ -	€ -	€ 2,450	€ 4,000	€ 8,000	€ 24,000

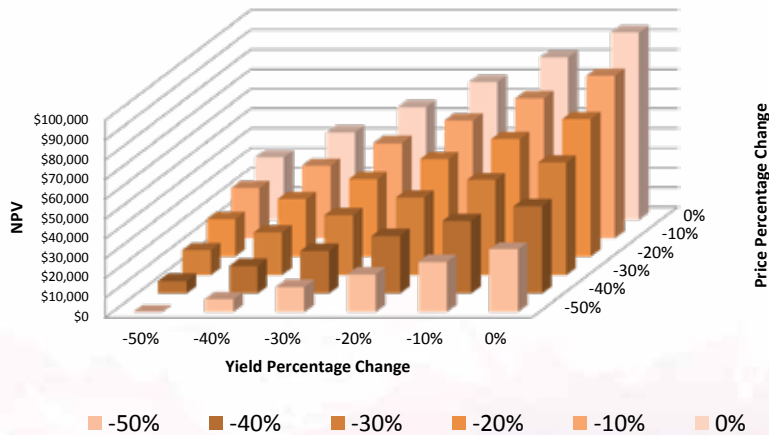
TOTAL ANNUAL COSTS	€ 2,743	€ 2,343	€ 2,633	€ 2,763	€ 2,894	€ 3,415
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NET PROFIT BEFORE TAX	€ (2,743)	€ (2,343)	€ (183)	€ 1,237	€ 5,106	€ 20,585
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## RETURN ON INVESTMENT

Considering an optimal investment case in walnut accounting for an investment of 10,453 Euros, yields a yearly average return on equity of 35%. Taking into consideration a cost of capital of 20% the project reveals a Net Present Value of 95,000 Euro. The graph below shows the Net Present Value profile of the investment depending on price and yield percentage changes.

## WALNUT NPV VS YIELD & PRICE











## INFORMATION SOURCES WITH ACKNOWLEDGEMENTS TO:

USAID/Kosovo Agriculture Growth and Rural Opportunities Program

USAID/Kosovo New Opportunities for Agriculture Program (completed in Feb. 2015)

Kosovo Agriculture Trade Balance 2007 to 2013 - Helvetas Swiss Intercooperation  
Kosovo

Kosovo Green Report 2014 – Ministry of Agriculture, Forestry and Rural Development

Scoping Study of the Agribusiness Sector in Kosovo – Recura - Agribusiness sector  
scoping study prepared for the 'EYE' Project



