



*Apimondia First World Conference on Organic Beekeeping
Bulgaria 26-29 August 2009*

Farm to fork traceability in organic honey

Aslı Elif Sunay¹ & Taylan Samancı²

¹ Food Engineer (Msc.)

² Agricultural Engineer (Msc.)

Altıparmak Food Industry Co., İstanbul, Turkey





OUR COMPANY...

- ❖ Established in Istanbul in 1980.
- ❖ The biggest honey packaging plant in Turkey with a capacity of 24.000 tons/year. (Equal to half of the total honey production capacity of Turkey).
- ❖ One of the biggest companies in Europe with its annual production capacity and laboratory facilities.



Balparmak Plant – Çekmeköy / İstanbul



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BEEKEEPING IN TURKEY

Turkey;

- ❖ Rich range of flora & wide range of honey.
- ❖ One of the 10 largest honey producers in the World.
- ❖ The *largest* producer of pine honey.
- ❖ Direct beekeeping: 40.000 families (115.000 beekeepers).
- ❖ 240.000 people live on beekeeping.



Marmaris (Muğla) / Turkey



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BEEKEEPING IN TURKEY

- ❖ 4.000.000 beehives.
- ❖ Migratory beekeeping (South-East-West).
- ❖ Average annual honey production: 50.000 tons.
- ❖ Average local consumption: 42.000 tons - 600 gr. per capita.
- ❖ Average annual honey export: 8.000 tons



Sunflower, Silivri (Tekirdağ) / Turkey





ORGANIC BEEKEEPING IN TURKEY

**According to data from
2009;**

Certified

- ❖ Beekeepers: 147
- ❖ Beehives: 14.917
- ❖ Production: 206,54 tons

In transition

- ❖ Beekeepers: 318
- ❖ Beehives: 10.614
- ❖ Production: 113,57 tons



Citrus, Finike (Antalya) / Turkey



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ORGANIC BEEKEEPING IN TURKEY

DEVELOPMENT OF ORGANIC BEEKEEPING

| YEARS | NUMBER OF BEEKEEPERS | | NUMBER OF HIVES | | PRODUCTION(TONS) | |
|---------------------|----------------------|---------------|-----------------|---------------|------------------|---------------|
| | CERTIFIED | IN TRANSITION | CERTIFIED | IN TRANSITION | CERTIFIED | IN TRANSITION |
| 2005 | 127 | 243 | 24.445 | 26.011 | 572,71 | 97,81 |
| 2006 | 122 | 66 | 26.596 | 6.682 | 640,32 | 101,10 |
| 2007 | 149 | 92 | 23.308 | 7.875 | 497,38 | 94,68 |
| 2008 | 93 | 188 | 11.207 | 16.173 | 181,21 | 200,46 |
| 2009 | 147 | 318 | 14.917 | 10.614 | 206,54 | 113,57 |
| 2010 (Estimated) | 300 | 200 | 47.100 | 14.800 | 447,45 | 111,00 |



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PROCEDURES & REGULATIONS

Ministry of Agriculture and Rural Affairs

National Referring Committee on Organic Agriculture

- Determine the strategies by annual meetings.
- Notify decisions to the Organic Agriculture Committee .

Organic Agriculture Committee (OAC)

- Responsible for promoting , developing, following and controlling organic agriculture.
- Also responsible for controlling and licencing certification bodies.

Certification Bodies (16)

Bcs Öko-garantie – Imo – Ecocert – Etko – C.U. – Ekotar –
ICEA – Ceres – Orser – Anadolu – Turkgap – Nissert – IMC –
Anka – Kalitest – Egetest



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PROCEDURES & REGULATIONS

- ❖ Organic agriculture started in Turkey on 1986 as a consumer demand from exporters.
- ❖ In 2002, Regulation on Application and Principles of Organic Agriculture was published which was revised in 2005.
- ❖ In 2004, Organic Agriculture Law (5262) was published.



Posof (Ardahan) Turkey



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EFFORTS TO PROMOTE ORGANIC PRODUCTION

- ❖ In 2007, we started a research for our “Organic Honey” pilot project in Gökçeada which is an island famous with organic production.
- ❖ The aim of the project was to organise all the beekeepers in the island for organic production as a solution for residue problems from conventional beekeeping.
- ❖ There were a total of 3100 (70 beekeepers) beehives where 1650 (42 apiaries) were certified.
- ❖ All apiarists used to sell their products directly to consumers and had inspection once or twice a year from the certification body.
- ❖ There were no packaging or processing plants in the island for honey and beeswax.
- ❖ In 2006 beekeepers had a problem of contamination from conventional production.





EFFORTS TO PROMOTE ORGANIC PRODUCTION

- ❖ Low annual organic honey yield like 5-10 kg./hive.
- ❖ No experts in the island to help about Good Beekeeping Practices.
- ❖ We found out residues in organic beeswax and also some quality problems in organic honey samples like high content of HMF or sucrose which showed improper storage conditions and feeding of bees with sugar during nectar flow.
- ❖ Beekeepers were more concentrated on the price of final product than on the investment that we plan to bring to the island like;
 - Building honey packaging plant with comb processing and storage units.
 - Organising training courses
 - Hiring experts to work with beekeepers to increase their yield of honey besides solving technical problems and assuring traceability.





PROBLEMS ABOUT ORGANIC BEEKEEPING

- ❖ Insufficient production of organic beeswax and difficulties to supply organic comb for beekeepers.
- ❖ Insufficient and expensive organic feed except honey.
- ❖ Insufficient areas for organic beekeeping.
- ❖ Insufficient knowledge of beekeepers about organic production.
- ❖ Low price of product compared to effortful and expensive work.



Göksun (Kahramanmaraş) / Turkey



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PROBLEMS ABOUT ORGANIC BEE PRODUCTS & TRADE

- ❖ Difficulties in organizing and contracting beekeepers.
- ❖ Prices are higher compared to EU which is a barrier for export.
- ❖ Market is limited as a result of high pricing.
- ❖ Weak demand from consumers (insufficient awareness and advertisements).



Gökçeada / Turkey





PROBLEMS ABOUT ORGANIC BEE PRODUCTS & TRADE

- ❖ Inadequate control by certification bodies (problems about traceability and unethical relations between beekeepers and inspectors).
- ❖ Lack of confidence with in the sector.
- ❖ Insufficient number of experts to control and follow up production.
- ❖ No controls for adulteration and most of the residues.
- ❖ Low yield compared to high costs and certification expenses (problems about sustainable production).





OBTAINING FARM TO FORK TRACEABILITY

- ❖ All beekeepers must be registered and licenced.
- ❖ All bee products intended for human consumption must be controlled for residues and adulteration (C3 or C4 sugars like cane, corn, rice, beet...etc.)
- ❖ Information about samples must be adequately identified and recorded.
- ❖ Sample must be representative for all the batch.



Balparmak R&D Laboratory - İstanbul



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FARM TO FORK TRACEABILITY

PRE SAMPLES

- ❖ Are there any residues of veterinary drugs and/or pesticide in honey?
- ❖ Were the bees fed with sugar during nectar flow?
- ❖ Are there any additives like sugar syrup or starch in honey?
- ❖ Is the floral and/or geographical origin of honey appropriate with declarations?



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FARM TO FORK TRACEABILITY

RAW HONEY SAMPLES

- ❖ According to the results of pre samples, we buy honey from beekeepers.
- ❖ Honey arrives to our plant in 25 kg. of tin containers.
One truck: ~ 600-800 tins.
- ❖ Results are verified with samples taken by our experts for each beekeeper.



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FARM TO FORK TRACEABILITY

RAW HONEY SAMPLES

- ❖ 100 % sampling.
- ❖ Analyses on the basis of each beekeeper.
- ❖ Sampling from each tin.
- ❖ Testing for 65 different parameters for every sample.

PRODUCTS

- ❖ Each blend of 20 tons of homogenous honey is provided a lot number. Every lot is analyzed again to certify its quality to the consumer.



Balparmak Plant-Witness Sample Storage



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ANALYSES

- ❖ **Residue Analyses:** Naphthalene, chloramphenicol, tetra, sulfa, strepto, macrolide, floxacine and nitrofurantoin group antibiotics (29 different substances).
- ❖ **Chemical Analyses:** Sugar profile (mono-, di-, poly-saccharides), amino acids, aroma compounds, humidity, acidity, conductivity, HMF, color, enzymes and stable isotope ratios (DELTA-C13)
- ❖ **Microscopic and Microbiological Analyses:** Pollen, honeydew elements (HDE), starch, mould, yeast, total bacteria, and pathogenic bacteria.
- ❖ **Sensory Analyses:** Quantitative descriptive analysis and profile testing, Friedman tests, consumer perception and preference tests with trained expert panelists.



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CONCLUSION

- ❖ Organic beekeeping is a good option to certify the way of production but does not guarantee the quality of the product. There is still need for a better traceability system both for organic and conventional beekeeping.
- ❖ Good Beekeeping Practices must be applied by every beekeeper as a mandatory implementation and must be supported financially by the governments.
- ❖ Organic beeswax production must be promoted and used combs must be separately processed before reuse.
- ❖ The only way to develop organic production is contractual beekeeping. Individual efforts are not efficient enough to cover the costs and follow the right applications.
- ❖ Training is needed both for beekeepers and also experts of certification bodies to ensure farm to fork traceability and quality of bee products.
- ❖ Growth of the market is not only dependent on the demand of consumers or raising awareness on the quality and health effects of bee products but also accessible prices.





THANKS...

