



Country Report

By KEVIN BELLUZ

Turkey: An industry focused on the future

TURKEY BRIDGES THE MIDDLE EAST AND EUROPE, CONNECTING THE FERTILE CRESCENT, THE BIRTHPLACE OF DOMESTICATED CROPS, TO THE WESTERN PENINSULA. It is the genetic home to thousands of plant species, many of which have become significant crops in horticulture worldwide, including crocus, cyclamen, and salvia as only three examples. Turkey has a complex history and an ongoing financial crisis, but its horticulture industry is looking to the future.

The city of Antalya rests on the Mediterranean Sea in southwest Turkey. The "old town," Kaleiçi, has a small harbor protected on both sides by jagged rock rising steep out of the sea. Travel a short distance along the coast in either direction and you will find the sandy beaches that have transformed Antalya into a modern resort city. Despite the natural beauty, one of the most striking features in the region is the patchwork of greenhouses. The structures begin only a few meters away from the beach and are dotted all around Antalya, especially on the plains to the west, which encompass 65% of Turkey's protected crop area.



Top: Potted plants are just a small part of the production at Ayer Tarim, Antalya, Turkey. Their other crops include young plants, anthurium, bedding plants, nursery stock and roses.



Left: Automation is a watchword for general manager Okan Yurdakul. He uses an EPS tray washer and heat sterilizer, peat bale breaker and a seeder to keep his operation running smoothly.

The business climate

Turkey's strategic location has resulted in regular political and cultural fluctuations. Istanbul (as Constantinople) was home to the first Christian Roman Emperor before the area became an Islamic state, as it remains today. While the calls to prayer ring through the streets daily, the rules of Islam, particularly in the cities, have relaxed, giving women more freedom and the business community a more liberal working environment. Currently, politicians and corporations are negotiating to include Turkey in the European Union. Turkey must still meet many conditions of the EU before they are allowed membership; one major barrier, of course, has been the volatile economy. In February, a dispute between the President and the Parliament, coupled with imminent financial ruin in the state banks, led to market instability that drove interest rates to 2200% overnight. That was a short-term spike, but even the "normal" rate hovers at 35%. The economic crisis also weakened the Turkish Lira (TL) by 30% against the U.S. dollar. Understandably, the financing of new structures or equipment for Turkish growers has presented some serious challenges.

The current system of state banks has subsidized agricultural loans primarily by fixing interest rates; however,

growers are concerned that privatized banks will eventually float interest rates and drown their farms. Mümin Akyol, a government credit representative, tried to soothe worries at a grower seminar, saying "Do not let yourselves be down, it is only a disadvantage." Despite his optimism, there is much uncertainty remaining within the grower community. Aside from the economic hardship, the average grower faces a significant knowledge gap in moving toward modern production techniques. The government is committed to introduce training initiatives and to subsidize attendance at events like GrowTech to help advance the industry. Since 42% of the Turkish population is directly involved in primary agriculture, the government will be closely watched to see if it upholds its promise.

Production in Turkey

Most of the 44,000 ha of protected crops in Turkey (more than half of which are fruits and vegetables) are under plastic: 60% in tunnels, 31% in poly structures and 9% under glass. The protected crop area is expected to almost double by 2020, with the biggest percentage increase in glass structures. Glass is the choice for production quality,▶



Country Report

particularly between November and April, when more than 80% of the annual precipitation (up to 100 cm in Antalya) clouds the sky. Turkey also experiences a wide temperature range, extending well beyond the national averages of 18 to 24C. The cool season requires a source of heat and some areas have access to geo-thermal sources, but liquid propane is probably the main heating fuel.

Production techniques are improving slowly. Soil is still the primary growing medium, though its quality varies in some regions to the extreme that fertilizer solutions above 1 mS/cm EC are restricted. Aside from sodium levels in water and soil, high bicarbonates and boron can often be contamination problems. The main pests include nematodes, spider mites, thrips, and the usual fungal pathogens like botrytis and fusarium. When it

comes to pest control, cleanliness is next to good management, and towards that end Turkish growers commonly fog greenhouses with formaldehyde between crops. There is little restriction of chemical products, particularly in relation to the EU. The integrated pest management (IPM) concept is only just being introduced to growers. Many growers are beginning IPM by using insect screening as a defense against pest introduction, which also helps them retain pollinators during hot weather when vents, or often whole side walls, are wide open. Biological control for greenhouse vegetable production is really still a research project in Turkey, despite familiarity with "beneficial" bumblebees for pollination. As could be expected, the larger businesses are already ahead of the curve: They are run by educated growers and managers who are propelling their crops into new markets, including export markets.

An example of modern production in Turkey can be found under 4 ha of plastic at Ayer Tarim in Antalya. The gutter connected structures made by Richel Serres de France are 3.5 m high at the gutter, with an 8 m span. Ayer is a privately owned firm growing young plants, potted foliage, anthurium, bedding plants, nursery stock, and their largest crop, cut roses. The rose production is in the process of being transferred into troughs with a coir and perlite media after initial experiments confirmed the expected yield multiple. Supplemental lighting is only used in the young plant range. The rose stem length and head size looked good, even during their low light season; in Istanbul, this quality earns an average wholesale stem price of 200,000 TL, or roughly US \$30 (prices in March had risen to 500,000 TL due to the crisis). The average wage, \$3 per day, means that even though they currently employ 60 people, the business is profitable.

Despite such low labor costs, Okan Yurdakul, general manager, still looks for opportunities to automate by adding to his EPS tray washer▶



Country Report

Floriculture in Turkey: A retrospective

The total cut flower production area in Turkey was reduced by approximately 17% in five years. In the 1992 to 1993 season, 669 ha were under production; during 1997 and 1998, only 557 ha. But Turkey has not reached its optimal export volume compared to its input of resources. This in spite of the progress made in production in both domestic and foreign markets: in 1998, cut flower exports totaled \$13,535,776.

The reduction in the cut flower production area could be the result of unstable export conditions. The more lucrative possibilities of other ornamental crops could be another explanation: Between 1993 and 1998, indoor ornamental plant production area was increased from 37 ha to 53 ha.

Imported production material makes up most of the items sold on the Turkish spot market. While Turkey's pot plant export market is almost non-existent, this is probably due to a continuously increasing domestic demand for pot plants. These growers can only just satisfy this demand, because they have the added challenge that total production is not big enough to compete with the lower labor cost conditions found in other countries.

The total production area for outdoor ornamental plants was 53 ha in 1989 and 1010 ha in 1998. This increase in outdoor ornamental production was stimulated by an improved living standard: Turkish consumers now had a general desire to have better home gardens, recreation areas and holiday villages.

By drawing on its rich resources of its land and people, growers in Turkey could strengthen their knowledge of the foreign market and the distribution chain, as well as improve their research and development activities, thereby making a name for themselves in the global ornamental market. ■

—Atilla Eris and Ozlem Kucukahmetler, Uludag University, Bursa, Turkey.
This information was originally printed in the *Chronica Horticulturae*.

and heat sterilizer, peat bale breaker, and seeder, all supplied by Conic Systems from Spain. The site is fortunate to have a reasonable quality water source—EC of 0.6 mS/cm with low sodium—simplifying their water soluble fertility program and allowing for overhead watering booms in the young plant range. The drainage water is collected to feed outdoor nursery stock. Pest management is done with ULV's capable of 4 micron droplets and sulphur burners are active almost every night in the rose houses. Overall, the operation bases its success around good organization and attention to the critical details of pH, EC, and environmental optimization.

Turkey's future

The economic upheaval in Turkey has dampened enthusiasm, but there is overall optimism that this is only a short detour from entry into the European Union. The geo-thermal heat sources, above average light levels, and competitive spirit of the people could power a strong industry. If the politicians provide some stability, Turkey could be recognized once again as a fundamental horticultural resource. ■

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