

REGIONAL FEED CENTERS are unique components of Israeli dairying. The centers receive forages, feed grains, and food-processing by-products and custom blend TMRs that are delivered by truck to area dairy operations. Each center will prepare feed for 15,000 to 20,000 cows.

Israel: 25,000 pounds per cow under harsh conditions

by Israel Flamenbaum

ISRAEL'S dairy sector consists of 115,000 Israeli-Holstein-breed cows on 1,000 dairy farms, most located in the coast and in the hot valleys. In 2008, average milk production was 25,200 pounds per cow, 3.60 fat, and 3.20 protein.

Dairy farmers in Israel are well organized and supported by professional institutions related to the ministry of agriculture, universities, and milk

marketing board. Farmers' cooperative companies supply clinical veterinary care and A.I. services. Israel Cattle Breeders Association (ICBA) owns the local DHI services, based on automatic data flow from the computerized milking equipment, mostly Israeli-made.

Israel has a unique dairy sector and milk "production concept." It has evolved to overcome significant limi-

tations caused by permanent water and land shortage and a hot and dry summer lasting for four to six months per year. High input prices, such as imported grains, fuel and machinery, relatively high labor cost, and large investments needed to overcome climatic restrictions make Israel's cost of milk production relatively high.

The Israeli unique and unconventional production concept is characterized by special and intensive feeding and management practices of cows living in relatively large dairy farms with full confinement. This concept is based on the belief that, under these conditions, getting the most milk per cow would be most economically viable.

We're recyclers

Israel's feeding system makes use of relatively high quantities of agro-industrial by-products in cows' diets. This reduces use of expensive imported grains and at the same time allows us to reduce the minimum amount of roughage in the diet. The unique Israeli diet, consisting of relatively high concentrations of energy and protein, allows high per-cow milk production, while keeping dairy farms environmentally friendly.

Most of the forages fed to the Israeli cows are winter crops, mostly wheat silages, grown during the rainy season. Summer forages, mostly corn and sorghum silages, are grown by using recycled waste water for irrigation. About half the concentrates in milking cows' diets and almost all the concentrates in heifers' diets are based on by-products, originally from fruit, vegetable, and other food-processing factories.

The use of large quantities of by-products benefits the Israeli dairy sector by reducing feeding costs and at the same time avoiding additional expenditure for treating these materials. It prevents environmental pollution. Nearly 630,000 tons of fresh, food-processing materials were used in 2007 to feed dairy cows in Israel. It had an overall economic value of U.S. \$40 million per year ... equivalent to more than 10 percent of the total per cow's annual feeding expenses.

High per-cow milk helps production efficiency by reducing per-milk unit feeding and labor cost. High productivity also reduces cows' contribution to global warming. Methane production per unit of milk produced is reduced with higher per-cow production. Due to preliminary results from studies dealing with dairy sector's "carbon footprints," total CO₂ equivalent emission per hundred-weight of milk produced by Israeli cows is expected to be 80 percent of that emitted by cows in West Europe, and only 40 percent of that emitted by New Zealand cows.

Summer heat stress in Israel causes substantial financial losses to dairy farmers and milk processors. The Israeli dairy sector has been developing heat stress relief methods for over 30 years.

Cooling cows in Israel is based on water evaporation from cows' body surface. This is done by means of a combination of wetting and forced ventilation.

Cooling effect was first experimented under Israeli summer conditions and published internationally in the early 80s. A large-scale, four-year survey carried out recently confirmed these experimental results.

Intensively cooled cows in summer produced only 1.3 pounds per day less than their group produced in winter. However, when cows were not cooled in the summer, the gap between daily winter and summer milk production was 8 pounds per day. The "summer to winter production ratio" was 98 percent for intensively cooled cows and only 90 percent for non-cooled cows.

Conception rate of winter-inseminated cows reached 45 percent in cows of different groups. Intensively cooled cows reached a conception rate of 34 percent in the summer, compared to only 17 percent in noncooled cows. Cooled cows required 0.55 pound of feed to produce 1 pound of milk, whereas noncooled cows required 0.61 pound of feed, a 10 percent improvement in feeding efficiency.

The experience gained in Israel indicates that both high productivity and production efficiency can be obtained when efficiently cooling cows in summer. Similar results can be expected in other dairy sectors in hot regions of the world.

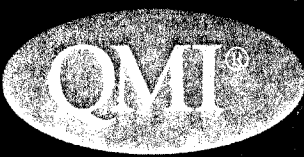
Could others copy us?

The Israeli "production concept" is based on obtaining high per-cow yields through overcoming limitations and the use of advanced technologies and management practices. The establishment of a comprehensive computerized "database" provides highly professional tools to dairy farmers and their supporting institutions.

The future development of dairy sectors in the emerging economies, most of which are situated in tropical and subtropical regions, can be defined in the following way. It is expected that the greatest demand for milk and fresh products will come from large urban populations. It is expected that most of the milk supplied to these centers likely is to be produced in new and well-equipped dairy farms which, due to the demand for high-quality fresh products, will be established relatively close to the consumption centers.

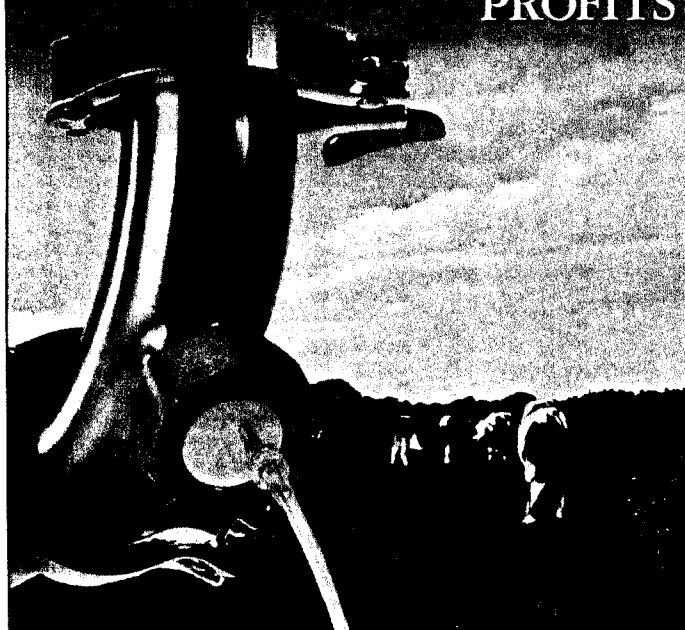
The proximity to the large urban centers will permit use of large quantities of waste water for forage production and the establishment of large feeding centers to incorporate cheap food-processing residues for feed. The use of these feedstuffs has the potential to reduce feeding cost and, at the same time, resolve disposal problems, as achieved these days in Israel.

Implementing efficient cooling methods, such as those developed and used in Israel, will allow minimizing the negative impact of heat stress on the cows.



426 Hayward Ave. N.
Oakdale, MN 55128
Tel: 651-501-2337
www.qmisystems.com

**ACCURATE
STRING
SAMPLING
FOR
MAXIMUM
PROFITS**



Circle No. 13 on Reader Response Card