INTRODUCTION

The summary and annual report for the year 2002 reflects the main spheres of interest and achievements of Israeli Holstein cattle and its breeders. Primarily, it consists of a relatively large number of tables, arranged in four sections:
BREEDING - MILK RECORDING - PRODUCTIVITY - FERTILITY
Since ICBA summaries are compiled and edited in the Hebrew language, a major effort has been made to provide a. m. tables with titles, column and stub headings as well as footnotes in English, for the benefit of our fellow dairymen and foreign readers world- wide.
Please remember: while European languages are written from left to right - Hebrew is written from right to left! Evidently, this fact determined to a large extent the order in which tables are constructed and aligned for presentation.

Although all tables should be self- explanatory through their contents, owing to the complexity of the subject treated some observations of a more general character seem indicated, instead of just listing them as a content of tables.

Section 1: BREEDING
For over five decades, the breeding and genetic improvement of dairy cattle in Israel has been carried= out by ICBA and its subsidiary A. I. cooperative centers ON and HASHERUT (now operating as SION Ltd., a sister company of ICBA), monitored and led by the Israeli Holstein Herdbook and common breeding committee, with full collaboration from the department of genetics, Volcani Institute of Agricultural Research. Thus, all breeders and herds benefit from ICBA's breeding activities.

Section 2: MILK RECORDING
Official milk- recording in ISRAEL began as early as 1934. Since then all Kibbuts herds and an ever- growing number of Moshav (family) herds have joined In 2002 out of appr. 110,000 Israel- Holstein dairy cows 103,801 cows were milk- recorded (94%). Still, there are another 10,000 cows in about 280 family herds (29%) not yet participating in milk- recording.
For reasons of distinct differences in management ,besides overall results of ,separate data are given for Kibbuts herds on 3x daily milking , milk-recording and Moshav herds most of them on 2x daily milking. Thus, separate lists for Kibbuts herds and Moshav herds are given (tables 18 and 19, respectively) , ranked according to average production of kg ECM/ cow/ year.

Section 3: PRODUCTIVITY
The respective tables give in- depth information on values more directly reflecting on the economy and profitability of the various aspects of dairy farming under local conditions. Distinction is being made between data regarding the entire national dairy herd, and separately for Kibbuts and Moshav herds. As of January 2001, former cooperative A. I. centers ON and HASHERUT amalgamated into SION Ltd, Israeli Society for Artificial Insemination and Breeding in close cooperation with ICBA. As such, SION Ltd. now owns bulls and installations at the service of all Dairy herds, also operating a common bank of bulls' semen, a dairy herd anywhere in this country can be served by any bulls of its choice. On the other hand, said system facilitates the inclusion of an almost unlimited number of herds in the use of young (test) bulls and their subsequent proof.
Separate tables bring the data for well- defined geographical regions, namely the Jordan & Bet She'an valley at 200- 350 m below sea level, where mainly seasonal calving is being practiced and the southern desert of the Arava, near the Red Sea.

Section 4 : FERTIUTY
As for the anterior section on productivity, this section too brings data on a national scale, for Kibbuts and Moshav herds, and the two a. m. defined geographical regions - Jordan & Bet She'an valley and the Arava.
Besides the publication of the comprehensive summary and annual report, Israeli dairy farmers adhering to ICBA receive detailed monthly reports on: milk- recording of each individual cow; total production of milk, fati protein, lactose and SCC; closed lactations and/ or lactations of culled cows; fertility reports; health reports {the latter through "HAHAKLAIT", cooperative for clinical veterinary services, a sister company of ICBA),
***
IMPACT OF AGENDA 2000: In the wake of agreements reflecting the trend of a globalize economy as formulated by GATT and WTO rounds during the last few years, Agenda 2000 has become the framework #or all agro- alimentary activities, including the dairy sector. By its very nature, dairy farming is bound to long- term

planning and investment, while the observation of ever more demanding ecological considerations are apt to bear heavily on small and medium- sized dairy operations and their economic survival.

The number of small, and even medium- sized dairy farms in Israel might decrease further in years ahead by way of partnerships - or by closing small dairies for lack of a new generation interested in continuing, a situation well- known in many developed countries.
While a. m. changes are under way, sometimes at unforeseeable leaps created by transfer of quota and/ or cows from one farm to another - sudden changes in the annual results of dairy herds might occur. Farsighted planning of the farm and of the entire national dairy branch indeed should minimize undesirable effects on farm economy and farmers' livelihood.

PDO1 - THE ISRAELI BREEDING INDEX

The Israeli breeding index was computed to maximize expected profit for the producer. Profit was computed as income less cost of feed required to produce the three milk components, transportation costs for fluid milk, and the fixed costs per cow, which were set so that the net profit would equal zero. The index coefficients were computed by differentiating the profit equation with respect to each component. The index coefficients were normalized so that 1 standard kg of milk with 3.34% fat and 3.08% protein would have a value of unity, resulting in the following index:
PDO1= -0.22(kg milk) t 8.5(kg fat) t 31 (kg protein)- 300(scs) t26(daughters' fertility)
Selection on this index is expected to reverse the trend of reduction in milk concentration arrived at by past breeding. Expected genetic gains after ten years of selection on the new index are 587 kg milk, 31 kg fat, 28 kg protein, 0.1 % fat and 0.09% protein, 0.01 SCS and -0.24 for daughters fertility, Even though the ratio of fat to protein in the index is 1: 3.6, expected gain in fat is still slightly greater then in protein.
Notes to tables:
Progeny test 03/ 2003 for production, SCS and daughters' fertility by BLUP method, MULTITRAIT ANIMAL MODEL.
Ease of genetic evaluations (PI, PTA , PPA) equals average breeding values for cows born 1995.
P. 1, = Pedigree index.
PTA- Potential transmitting ability.
PPA- Potential production ability.
KM =Economy- corrected- milk, periodically adjusted payment formula:
(9.436 kg fat + 22,018 kg protein).
Elite cows = with lifetime productions exceeding 100,000 kg milk in 2002.
Prospective bull dams = 0.5% of the best cows in the national herd, based on breeding value.
Parity- breeding = for cows, days of rest between calving and following first insemination.
Insemination without follow- up = result of insemination not reported.
Double insemination = more then one insemination within four days; included in statistical analysis as one insemination.
Wasted days = C (1 OO/ CR - 1) where C is the average number of days between inseminations, and C. R. conception rate(%).
C. R.= conception rate (%), based on conceptions confirmed by rectal palpation.
Pregnancy index = average number of inseminations per pregnancy.