THE EFFECTS OF MANAGEMENT IMPROVEMENT ON PRODUCTION AND HERD HEALTH IN THE LARGEST INTENSIVE DAIRY CATTLE OPERATION IN IRAN.

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INTRODUCTION

There is a great demand for animal source protein, especially milk and its by products in developing countries including Iran.

To partially cover this need, large numbers of registered and non registered Holstein dairy cattle have been imported to Iran mostly from America and Europe during the past two dicades.

Meantime, the lack of knowledge in different aspects of efficient management and disease control, in addition, the sensitivity of the imported pure breed cattle to the existing pathogenic agents have caused noticeable damages to the dairy farms and national income.

To eliminate the major problems and reveal the effects of sound management and disease control on efficiency of the dairy farmsunder local conditions, the present study was carried out in 13 Intensive Dairy Farms owned by the Mostazafan Foundation and run by its Department of Agriculture and Animal Production. The beneficial results however, could be applied as a guideline to increase the efficiency in dairy farms throughout the country.

Material and methods

The study was made in 3 consecutive years . the total numbers of nearly 11000 heads of animals were under surveillance .

To insure higher milk production and raise healthy cattle especial steps were taken toward the prevention and control of the hazardous enzootic diseases.

The vaccination of female calves against brucollosis was carried out by injection of S_{19} during the 4 - 8 months of age which was a preferable time (1).

Vaccination of all animals under study against Foot and Mouth Disease , Anthrax , Black leg , Rinder pest and Pasteurellosis was regularly applied.

To provide a healthy environment , ventilation of calf pens was improved and desinfectants and flame were used in proper intervals in milking parlours and barn area.

Serological tests for Brucellosis detection and tuberculination using bovine and avian strain of tuberculin were performed 3 times a

year in order to eliminate the reactor animals.

To minimize the incidence of mastitis in the herds, routine inspection of the udder together with the reduction of the environmental factors causing the udder problems (2) were proctised.

The feeding of nusring calves changed to milk and milk replacer system (3). For dairy cattle nutrition the rervised net energy system (4) was considered.

To assist the visual observation of heat in the herds, teaser bulls were allocated to each barn yard.

The provision of high quality frozen semen was also under close attention for increasing the fertility and milk production.

Individual milk recording of dairy cows was taken every 15 days, in order to group the dairy cattle according to their milk yield.

Careful selection and culling of animals was continuously carried at in the whole operation on the basis of milk production, body conformation and efficiency.

Results and Discussion

An over - all improvement scheme was planned by the Department of Agriculture and Animal Production of the Mostazafan Foundation to increase the efficiency and milk production in its 13 large Dairy Farms based on the recent scientific and practical data.

Therefore, nearly 11000 heads of animals were placed under intense attention and especial management.

The total number of dairy cows that completed a lactation period were 3765 heads with an average individual daily milk production of 16.5 kg in 1988-89, this figure as it is shown in table (1) could be an indication of improper management.

The number of dairy cows however increased to 3951 in 1989-90. the individual daily milk yield meantime increased to 19.2 kg which indicated a statistically significant increase ($P<0.05$).

In 1990-91 the number of dairy cows again raised to 4234, with an average individual daily milk production of 20.3 kg.

The pooled variance methed to calculate the (t) value of the difference between means of the milk yields in 1989-90 and 1990-91 also showed a significant increase ($P<0.05$).

table (1). the number of dairy cows under study and the average daily and yearly milk produced.

description	*year*		
	1988-89	1989-90	1990-91
No. of dairy cows	3765	3951	4234
the average individual daily milk (kg)	16.5	19.2	20.3
total yearly milk (ton)	18947	23137	26215

table (2). The number of calves born and its mortality rate.

description	*year*		
	1988-89	1989-90	1990-91
No.of calves born	4689	5095	5609
No.of calves lost	429	319	252
% mortality	9.15	6.26	4.5

Following the vaccination of young animals and improving the sanitation measures, the mortality rate of calves decreased significantly during the first 3 critical months of age (table 2).

To avoid late pregnancy in heifers especial attention was given to proper feeding of young heifers to reach their suitable weight and height at an earlier age which would be of economical advantage(5).

The age of heifers at first breeding having proper condition was %43 below 17 months and %57 above 17 in 1988-89. The proportion changed to %56 and %44 in 1989-90, %66 and

%34 respectively in 1990-91.

The open days of the cows and calving intervals are considered two main factors in evaluation of breeding efficiency. The average open days in the herds was 106 days in 1990-91 that resembled a satisfactory figure for breeding efficiency. The calving interval in the herds was also 406 days which was an average standard (6) and should be further improved in future.

summary

Different aspects of sound dairy cattle management are essential factors to increasing profit and health herd of the large dairy operations.

Most dairy farms today suffer greatly from losses due to the lack of good management practices in Iran.

The present study however was made on the Effects of Management Improvment on production and herd health in 13 Intensive large Dairy Farms having nearly 11000 heads of Holstein cattle and are owned by the Mostazafan Foundation in Iran.

The average number of milking cows in the whole operation was 3765 headn in 1988 increasng to 3951 in 1989 and 4234 in 1990-91.

The average daily total milk was 62.122, tons in 1988 increasing to 75.859 in 1989 and 85.950 tons in 1990-91.

The daily individual average milk production of cows was 16.5 Kg, 19.2 and 20.3 Kg recpectively , which indicated a statistically signifant increse ($P<0.05$).

The number of calves born was 4689 in 1988 , 5095 in 1989 and 5609 heads in 1990-91 . The calf mortality rate during the first 3 months of age was 429,319 and 242 heads repectively that showed a significant decrease.

The age of heiers at first breeding having suitable weight and height was %43 below 17 and %57 above 17 months in 1988 the proportion changed to %56 and %44 in 1989 and %66 , %34 in 1990-91.

The average open days of the cows in the whole operation was 106 days and calving interval 403 days in 1990-91.

The data obtained was a good indication of proper culling and selection of animals, gradual improvement in feeding and veterinary care, and sanitation which the latter is of great importance in the region.

Resumé:

Amelioration des facteurs sanitaire et de l'elevage , et leurs effets dans les grandes exploitation laitières en Iran.

Les differants facteur jouent un rôle essentiel aux niveau des exploitations laitiéres qui sont liées àla structures des troupeaux et a des criteres économiques ou physiopathologiques.

En effet tous les types dexploitations ne presente pas les mêmes marges de progrès en Iran. cela est dû a l'ingnorance techinque de certains élèveurs qui sont oblige' de supporter ces bénèfices fort reduite

Il est donc important de préciser dans quels cas ces contraintes de structure ou de fonctionment sont effectivement limitantes.

C'est l'objet de cette étude réalisée durant ces trois dernière années sur les 13 exploitation laitièrs intensives qui se sont techniquement dirrigé par le centre de l'Agriculture de la Fondation de Mostazafan en Iran avec un effective de 11000 animaux de rãce Holstein.

Les études porté sur un cheptele laitière de 3765 têtes en 1988-89, 3951 en 1989-90 et enfin sur 4234 durant lannée 1990-91.

La production moyenne journalière de chaque laitière était alordre de 16.5 Kg en 1988-89 , 19.2 kg en 1989-90 et 20.3 kg en derniere année.

Ces donne montrent un élèvation qui est statistiquement significative ($P<0.05$).

Les normes des veax nouveaux né ont été à l'ordre du 4689, 5095 et 5609 durant l'année 1988,1989 et 1990-91 avec des mortalité respective jusqu' aux l'âge de 3 mois, 429, 319 et 252, étant montre une baisse significative.

La première insemination a été exécuté chez les génisses à l'âge de moins de 17 mois et au dessus de 17 mois en 1988-89 qui represente 43 et 57 pour cent respectivement. ceux - ci est arrivé à 56 et 44 p.cent en 1989-90 et de 66 et 34 en dernière année.

Le moyen de l'intervale entre le vêlage jusqu' àla concption était à l'ordre de 106 jours. qui est un norm standard.

Aussi le moyen l'intervale entre de 2 vêlages était à l'ordre de 403 jours en 1990-91 qui est resonnable.

D'après les resultas obtenu, on en vient à conclure que la conduite de troupeau présente une meilleure valorisation de selection et de suprèmer les animaux en considérant leur niveau optimum d'alimentation et la santé des troupeau dont cetle dernière joue un rlôle très important dans la conduite des troupeaux en Iran.

Zusammenfassung

Einfluss der verbesserung des Managementes auf Produktion und Gesundheit der Herde bei dem groessten intensiv gehaltenen Betrieb in Iran.

Das Ziel bei dem industriell gehaltenen Milchvieh in den Grossbetrieben ist die hohe leistung und die Gesundheit der Tiere, welche die Wirtschaftlichkeit des Betriebes sicher stellen zu koennen zur zeit leiden aber die Mehrzahl der Milchviehbetriebe in Iran unter schlechtes Management, das durch nicht Fachkraefte durchgefuehrt werden.

Die Frage nach zugehen, sind folgende Untersuchungen ueber 3 Wirtschaftsjahrehin von 1988 bis 1991, in 13 Betrieben, die durch Mostasafan Foundation zentral bewirtschaftel werden, durchgefuehrt worden, Diese Betriebe besassen in Gesamt 11000 Tiere, Die Zahl der Milch kuehe waren 3765,3951 und 4234 Stuck fuer die jahre 1988-1989, 1989-1990 und 1990-1991, Es wuerden in diesen Betrieben im Durchschnitt 62117, 75859 und 85950Kg, Milch pro Tag in den genannten Jahren gemolken, Die Tagesmilchleistung pro Kuh waren fuer die genate Jahre 16.5 , 19.2 und 20.3 Kg. Diese Unterschiede sind statistisch gesichert ($P<0.05$) 4689 , 5095 und 5609 Kaelber sind in den Jahren 1989 , 1990 und 1991 aufgezogen , 429 , 319 und 252 kaelber sind bis zum Alter von 3 Monaten (das kritische Lebensalter) in den Jahren 1989 , 1990 und 1991 verendet. was auf einen deutlichen Rueckgang der Mortalitaetsrate deuten . 43,56 und 66 prozent der faersen bakammen in dem 1. , 2. und 3. Versuchsjahr dos geeignete Gewicht und die Widerristhoehe Fuer die Ersbesamung bis zur Alter Von 17 Monaten. Die Zwichentragezeit betrug Fuer die gesamte Herde 106 tage , Welch eine akzeptable Zeit darstellt . Zwischenkolleaeit hat sich bis auf 403 Tage im Jahre 1990-91 Verbessert.

Die Ergebnisse zeigen , dass eine richtige Selektion , kontinuierliches Verbessern der Fuetterung , dauerhaftes Tieraerztlichtes Ueberwachen und Durchfuehrung der Hygiene bei den industriell gehaltene Milchviehherden ihre wichtige Bedeutung haben.

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