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# INFORMATION

Hokkaido University granted the degree of Doctor of Veterinary Medicine to the following 2 researchers on 25 March, 1976 under a new regulation (1962) authorizing the granting of the Doctor's degree to qualified researchers who were not graduates of the Graduate School of Veterinary Medicine.

The titles of their theses and other information are as follows:

## A MULTIPLE REGRESSION ANALYSIS ON SIX MEASUREMENTS OF BOVINE SEMEN CHARACTERISTICS FOR ESTIMATING FERTILITY

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The correlation between the characteristics of bull semen and its fertilizing capacity was studied with 4 Holstein bulls at an artificial insemination center. Mixture samples of 5 ejaculates successively collected from each bull in a short time were obtained four times over a year at approximately 3 months intervals and were subjected to the measurement of the following 6 characteristics of semen: fructose ($X_1$), citric acid ($X_2$), glycerylphosphorylcholine (GPC) ($X_3$), total nitrogen ($X_4$), total solids ($X_5$), and the number of post-thawing progressively motile spermatozoa ($X_6$). The correlation between these 6 measurements and the conception rate (Y) was analyzed by a multiple regression analysis. The multiple regression equation of the conception rate on the 6 measurements was obtained as follows: $\hat{Y}=93.925-21.416\,X_1+10.072\,X_2-21.227\,X_3+22.970\,X_4-2.405\,X_5+8.840\,X_6$ ($R^2=0.767$). Even with removing one factor of citric acid ($X_2$) or two factors, fructose ($X_1$) and citric acid ($X_2$), for estimating the conception rate, a high coefficient of determination of other factors to the conception rate was maintained ($R^2=0.747$ and 0.722, respectively).

The results of the present investigation suggest that the GPC content and the number of progressively motile spermatozoa will more heavily influence fertility than other measurements because there exists a close relationship between the epididymal function and the number of post-thawing progressively motile spermatozoa, which possess a high metabolic activity. Thus, in conclusion, the GPC content and the number of progressively motile spermatozoa, particularly the former, are most valuable for estimating the fertilizing capacity

of bull semen. (The outline of this study will be published in the forthcoming issue of the International Journal of Fertility).

## STUDIES ON HUMORAL AND CELLULAR IMMUNITY IN EXPERIMENTAL TOXOPLASMA INFECTION

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Original reports of this thesis appeared in "Research Bulletin of Obihiro Zootechnical University" Vol. 8, 37~49 (1974), Vol. 9, 35~47 (1975), Vol. 9, 257~264 (1975), "Japanese Journal of Veterinary Science" Vol. 37, 235~243 (1975), and "Zeitschrift für die Parasitenkunde" Vol. 49, 11~23 (1976).