國立嘉義大學九十四學年度
動物科學系碩士班招生考試試題

科目：專業英文

一、試將下列英文翻譯成中文。 (25%)

Bulls gain more rapidly and are more efficient in producing leaner carcasses than steers. However, the underlying mechanisms for these advantages have not been determined. Research data suggest that no difference in μ-calpain or m-calpain activities were observed between bulls and steers. The reduced proteolytic capacity of muscle due to increased calpastatin and (or) cystatin activity may serve as a regulator of myofibrillar protein degradation.

二、試將下列英文翻譯成中文。 (25%)

Moving of swine and poultry operations into complete confinement without access to pasture has had a profound effect on vitamin nutrition (as well as mineral nutrition). Pasture could be depended on to provide significant quantities of most vitamins since, young, lush, green grasses or legumes are good vitamin sources. More available forms of vitamins A and E are present in pastures and green forages containing ample quantities of β-carotene and α-tocopherol versus lower bioavailable forms in grains. Confinement rearing to include poultry in cages and swine on slatted floors has limited animal access to feces (coprophagy), which is rich in many vitamins. Confinement rearing requires producers to pay more attention to higher vitamin requirements needed for this management system.

三、試將下列英文翻譯成中文。 (25%)

Fifty-six Holstein dairy cows from a commercial dairy herd in the Northern part of Greece were used to determine the effect of vitamin E supplementation on immune parameters, milk composition and milk quality. Cows were assigned to one of two experimental groups: control (no vitamin E supplementation) and vitamin E supplementation. Supplementation of vitamin E started 4 weeks prior to and continued up to 12 weeks after parturition. Supplementation included daily oral administration of vitamin E at 3000 i.u./cow prepartum and was reduced to 1000 i.u./cow post partum. Blood samples were collected weekly for 8 weeks starting 4 weeks before parturition, neutrophils were isolated and the following parameters were determined in neutrophils activated by phorbol myristate acetate: total cell-associated and membrane-bound urokinase plasminogen activator (u-PA) activity and superoxide production. Milk samples were collected weekly and fat, protein, lactose, somatic cell count (SCC), plasmin and plasminogen-derived activity were determined. Activated neutrophils isolated from cows that received supplemental vitamin E had higher ($P<0.01$) total and membrane-bound u-PA activities during the first 3 weeks after parturition and higher ($P<0.01$) superoxide production during week 1 prepartum and week 1 post partum compared with the corresponding values of activated neutrophils isolated from control cows. Vitamin E supplementation had no effect ($P=0.28$) on plasminogen-derived activity in milk. Milk obtained from cows that received supplemental vitamin E had SCC lower by 25% ($P<0.05$) and plasmin lower by 30% ($P<0.01$) than corresponding values in milk obtained from control cows. The reduction in plasmin as a result of vitamin E supplementation is very beneficial to the dairy industry because plasmin reduces the cheese-yielding capacity of milk, affects the coagulating properties of milk and its overall ability to withstand processing during cheesemaking. In conclusion, vitamin E supplementation had positive effects on the function of bovine neutrophils and milk quality in a commercial dairy herd.

四、閱讀測驗（25%）

Please read the abstract and answer the questions followed.

Abstract Title:
Reproductive Performance of Purebred Swedish Landrace and Swedish Yorkshire Sows:
I. Seasonal Variation and Parity Influence

The objective of this retrospective study was to investigate the causes of variation in the reproductive performance of purebred Swedish Landrace (L) and Swedish Yorkshire (Y) sows. Data analysed comprised farrowings from 1994 through 1997 from 19 Swedish nucleus herds and included 20,275 litters from 6,989 purebred sows (3,598 L and 3,391 Y). The main traits analysed were litter size, weaning-to-first-service interval (WSI), farrowing rate, remating rate and age at first farrowing. Analysis of variance was used for the statistical analysis of quantitative data. Logistic regression analysis was applied for binary data using the GLIMMIX macro in the SAS program. Factors included in the analyses were breed of sow, breed of boar, parity number, herd–year combination within breed, mating type (natural mating or artificial insemination), lactation length and month of the year. L sows, compared with Y sows, produced larger litters [11.61 vs 11.54 total born / litter (ns) and 10.94 vs 10.58 born alive / litter ($P < 0.001$)] and had a longer WSI (5.6 vs 5.4 days, $P < 0.001$), a higher farrowing rate (82.8 vs 80.9% units, $P < 0.05$) and a lower remating rate

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(6.2 vs 8.8% units, $P < 0.001$). On average, L sows were younger at first farrowing than Y sows (355.6 vs 368.6 days, $P < 0.001$). The seasonal influence on WSI was greater for primiparous sows than for multiparous sows. Primiparous sows weaned from June to October had a longer WSI than those weaned from January to May or in November ($P < 0.05$). Mating in August resulted in the lowest farrowing rate and the highest remating rate. The seasonal influence on farrowing rate and WSI was more pronounced in Y sows than in L sows. However, season had no significant influence on litter size in either L or Y sows.

Key words: parity, purebred, reproductive performance, season, sow.

Questions:

1. Describe the traits investigated by the authors in the study and explain each trait in one sentence.
2. What are the factors included in the statistical model of this study?
3. The authors said that “The seasonal influence on WSI was greater for primiparous sows than for multiparous sows”. What is the difference between primiparous and multiparous sows?
4. Do sows produce more live pigs during summer than during winter according to the results of this study?
5. Why is this a retrospective study? (Hint: prospective vs. retrospective)