SUMMARY
SUMMARY

1. The study on "Theriogeneseology of rabbit under the ecoclimatic conditions of Barapani, Meghalaya" was undertaken at ICAR Research Complex, Rabbit farm during the year 1991-92, 1992-93 and 1993-94. The results were evaluated in the Laboratory of the Department of Zoology, Gauhati University at Guwahati, Assam.

2. The North Eastern hill region as a whole has been identified as a meat consuming zone and the people are generally free from any taboo in regard to the consumption of meat. Although the choicest meat at present, of the people of the region are pork, beef, mutton and chicken, a wide variety of other semidomesticated and wild animals are also used for meat purposes. Thus the region offers a great scope for exploring the possibilities of introducing rabbit as farm livestock for meat production.

3. After careful consideration of some of the hitherto unexplored prospects, rabbit can be considered to be the animal of choice to provide the basic meat supply at an economic rate.

4. The study was based on versatile quantities of rabbit being grain saving harbivorous animal and as such it won't compete with human, pigs and chicken for grain. It has a very strong reproductive ability and can yield more meat than other domestic animal and easily can convert forage to animal protein. Its meat has a very high nutritional value. Besides meat, it also provide us with fur which can be used in making handy crafts which have a good market.

5. The average maturity age of Newzealand white and Soviet Chinchilla female rabbit was 6.78 ± 0.03 months and 6.76 ± 0.03 months respectively under Barapani rearing conditions.

6. The number of matting required for successful conception was 1.23 ± 0.04 for Newzealand white and 1.31 ± 0.04 for Soviet Chinchilla rabbit which showed
no significant difference between the breeds. However in second generation the number of mating was less for successful conception which indicated that the success of conception increases with the increase of age.

7. The nest performance of the breeds in terms of kit viability in absence and presence of nest depicted that the mean litter size of Newzealand white and Soviet chinchilla rabbit was $6.10 \pm 0.94$ and $4.77 \pm 0.77$ numbers in without nest against $6.24 \pm 0.16$ and $6.08 \pm 0.17$ numbers of kits with the nest building group respectively. The survivality status at weaning in without nest building group was $2.00 \pm 0.70$ and $1.00 \pm 0.28$ numbers in Newzealand white and Soviet chinchilla rabbits against $4.97 \pm 0.12$ and $5.03 \pm 0.13$ number of kits with nest building group respectively, which signified the nest building rabbit has got positive economic benefit.

8. The mean gestation period was $30.89 \pm 0.05$ days in Newzealand white rabbit and $30.89 \pm 0.05$ days in Soviet chinchilla rabbit. There was no significant difference between breed, generation, kindling order and season of kindling.

9. The inter kindling period of Newzealand white rabbit was $95.01 \pm 1.71$ days and $94.64 \pm 2.09$ days in Soviet Chinchilla rabbit which showed no significant difference in between breeds and generations.

10. The litter size at birth of Newzealand white rabbit was $6.91 \pm 0.15$ number and $5.92 \pm 0.16$ number was of Soviet Chinchilla rabbit. In both the breed the trait was slightly higher in Second generation. In kindling order the litter size at birth was highest in second kindling in both the breeds. The season of kindling showed highest number during the 4th (December to February) season. However, no significant differences was observed between breeds, generations, kindling order and season of kindling.

11. The litter size at weaning of Newzealand white rabbit was $4.81 \pm 0.11$ number and in Soviet Chinchilla rabbit the litter size was $4.84 \pm 0.13$ numbers. In both
the breed the litter size at weaning was more in second generation. The season of kindling showed that the litter size at weaning was highest in 3rd (October to November) season but there was no significant difference in between breeds, generations, kindling order and season of kindling.

12. The litter weight was higher 321.69 ± 9.24 g in Newzealand white compared to 294.28 ± 9.67 g in Soviet Chinchilla rabbit. The litter weight in both the breed was higher in second generation and in kindling order it was highest in IIIrd kindling. The litter weight was highest in both the breeds, during 4th (December to February) season. But the results showed no significant difference between generation, kindling order and season of kindling. But, there was significant difference (p < 0.05) between the breeds in their litter weight in birth.

13. The litter weight at weaning was higher 3469.32 ± 93.75 g in Soviet Chinchilla rabbit compared to 3464.32 ± 93.75 g in Newzealand White rabbit kits although there was no significant difference between the breed. The trait was comparatively higher in second generation in both the breeds. In kindling order the litter weight at weaning was highest in 1st kindling (3654.22 ± 196.99 g in Soviet Chinchilla and 3641.82 ± 190.11 g in Newzealand White rabbit). In season of kindling, the litter weight at weaning was highest to the kits born in 3rd (October to November) season and it was lowest to the kits born in between June to September (2nd season). The results showed highly significant difference (P < 0.01) between generations and between (P < 0.05) seasons of kindling.

14. The litter survivality was estimated and found to be 80.11 ± 2.52 percent for Newzealand White rabbit kits against 83.71 ± 1.29 percent for Soviet Chinchilla rabbits. In both the breed the survivality percentage was more in first generation. In season of kindling for Newzealand White rabbit the trait was more being 83.63 ± 5.71 percent in 1st (March to May) where as, for Soviet Chinchilla rabbit the trait was more being 88.75 ± 0.99 percent in 3rd (October to November) season. However, there was
no significant difference in the survivality of kits in between breeds, generations and seasons.

15. The individual body weight of kits at birth of Newzealand White was $52.47 \pm 0.55$ g against $50.03 \pm 0.51$ g for Soviet Chinchilla kits. In both the breeds the female kits showed higher body weight than the male kits. In season of kindling the individual body weight at weaning was found highest $56.77 \pm 1.13$ g in Newzealand White and $55.61 \pm 1.36$ g in Soviet Chinchilla kits born in 3rd (October to November) season. The results showed no significant difference in between the sex and generation. However, the difference was significant ($P < 0.01$) in between the breeds and season of kindling.

16. The mean individual body weight at weaning was higher $721.37 \pm 6.36$ g in Soviet Chinchilla compared to $720.20 \pm 7.41$ g in Newzealand White rabbit kits. In both the breeds the males showed higher body weight over female. Again in both the breeds the second generation kits were grown heavier than the first generation kits. During season of kindling the individual weaning weight was highest to the kits born during 3rd (October to November) season. The results showed no significant differences in between the breeds. However, the body weight gain was significantly ($P < 0.01$) different in between sex, generation and season of kindling.

17. The mean individual body weight at 90 days was higher $1661.47 \pm 9.07$ g in Soviet Chinchilla rabbit compared to $1625.64 \pm 64.96$ g in Newzealand White rabbit. Moreover in both the breeds the males were slightly heavier to that of females. The generation growth showed that the weight gain was more in second generation in both the breeds. The highest body weight gain was in 3rd (October to November) season in both the breeds being $1662.72 \pm 20.79$ g in Newzealand White and $1698.55 \pm 22.57$ g in Soviet Chinchilla rabbits. The frayer weight gain was significantly ($P < 0.01$) different in between the breeds, generation and seasons of kindling. However in both the breeds there was no significant difference in weight gain in between the sexes.
18. The body weight gain at 120 days was 2195.78 ± 11.68 g in New Zealand White and 2173.79 ± 11.26 g in Soviet Chinchilla rabbit. In both the breeds males were heavier than the female kits. The kits born in the second generation were little heavier in both the breeds than those born in first generation. The weight gain at 120 days was highest in 3rd (October to November) seasons in both the breeds. There was no significant difference in weight gain at 120 days in between the breeds, generation and seasons. However, the weight gain was significantly different (P < 0.05) in between the sexes as the males were heavier compared to females.

19. The individual body weight at 180 days was 2775.57 ± 12.40 g in New Zealand White and 2577.21 ± 11.90 g in Soviet Chinchilla rabbit. The body weight gain was highest in male (2802.98 ± 17.94 g in New Zealand White and 2604.62 ± 17.51 g in Soviet Chinchilla) than the females (2748.16 ± 16.18 g in New Zealand White and 2549.80 ± 16.18 g in Soviet Chinchilla) rabbits. In both the breeds the second generation rabbits attained little higher body weight in comparison to first generation weight. In season of kindling the weight gain was highest in both the breeds in 3rd (October to November) season. The weight gain at 180 days showed highly significant (P < 0.01) difference in between breeds and sexes. The significant (P < 0.05) difference also showed in between season of kindling but there was no significant difference in between generation body weight gain.

20. The pre-weaning body weight gain in New Zealand White rabbit was 14.91 ± 0.10 g and 15.03 ± 0.14 g in Soviet Chinchilla rabbit. In both the breeds the body weight gain was higher in male compared to females. In both the breed the body weight gain was more in second generation. The pre-weaning body weight gain was highest in kits born in 3rd (October to November) season being 15.59 ± 0.30 g in New Zealand White and 15.71 ± 0.36 g in Soviet Chinchilla rabbits. The pre-weaning body weight gain was not significantly different in between the breeds but it was highly significant (P<0.01) in between sexes, generation and seasons.
21. The post weaning body weight gain was nearly similar (19.97 ± 0.15 g and 20.69 ± 0.14 g) in Newzealand White and Soviet Chinchilla rabbits. In both the breeds the weight gain was also almost similar both in males and females. The generation growth showed higher gain in first generation compared to second generation. During season of kindling the weight gain was almost similar although the weight gain was little higher in 2nd (June to September) season. The post weaning body weight gain was highly significant (P < 0.01) in between breeds and generation. However, the growth was not significant in between sexes and seasons.

22. The nutritional growth performance with different dietary protein level (D1 to D5) showed that the cumulative body weight gain in 48 days was highest in 22 percent (D5) protein diet for both Newzealand White and Soviet Chinchilla rabbits. The average daily body weight gain was found highest 19.6 ± 1.05 g per day in Newzealand White and 17.17 ± 0.45 g per day in Soviet Chinchilla rabbit fed with 22 percent (D5) protein diet and lowest when fed with 14 percent (D1) protein diet. The feed conversion efficiency was highest 4.38 ± 0.18 and 4.70 ± 0.27 in Newzealand White and Soviet Chinchilla rabbit respectively when fed with 22 percent (D5) protein diet and lowest when fed with 14 percent (D1) protein diet. But the maximum feed intake was highest with 18 percent (D3) protein diet for both the breed. However, no significant difference was observed in feed intake amongst the different diets. The body weight gain and feed conversion efficiency for both the breed was highest with 22 percent (D5) protein diet, which showed 16.89 ± 0.32 g per day in Newzealand White rabbit and 15.86 ± 0.66 g per day for Soviet Chinchilla rabbits.

23. In Newzealand White rabbit the dressing percentage was 54.1 ± 0.31 percent against 1908.33 ± 52.89 g live weight at slaughter. Amongst the different cuts of meat the hindleg yielded highest weight and foreleg portion yielded lowest weight. The yield of parts of edible offal was liver 5.94 percent, kidney 1.61 percent and heart 0.73 percent of the total edible meat was 1031.93 ± 22.52 g. In Soviet Chinchilla rabbit the dressing percentage obtained was 55.61 ± 0.28 g against the live weight at slaughter of
2136.67 ± 25.48 g. The different cuts of meat showed that highest yield was 352.17 ± 6.47 g (29.64 percent) in hindleg.

24. The protein content (dry matter basis) was found highest (67.30 ± 0.17 percent) in Newzealand White with D5 diets. In Soviet Chinchilla rabbit the protein content was highest at 72.22 ± 3.28 percent when fed with 22 percent protein diets. This confirmed that Soviet Chinchilla rabbit meat contained significantly more protein.

25. The dry matter content of meat was maximum at 30.40 ± 0.18 percent when fed with 16 percent protein diet and it was minimum 26.42 ± 1.54 percent when fed with 14 percent protein diet in Newzealand White rabbit. In Soviet Chinchilla rabbit the dry matter content was maximum (25.27 ± 0.35 percent) when fed with D4 (20 percent) diets and it was lowest (22.80 ± 0.10 percent) when fed with D1 (14 percent) diets. This showed that the meat of Newzealand White rabbit contained significantly higher percentage of dry matter in meat compared to the meat of Soviet Chinchilla rabbit.

26. In Newzealand White rabbit the average fur weight was 213.17 ± 6.57 g against average live weight of 1908.33 ± 41.45 g and in Soviet Chinchilla rabbit, 203.00 ± 3.73 g fur was obtained when the live weight was 2136.67 ± 25.05 g. This showed that 11.13 g and 9.50 g of fur was produced per 100 g of live weight of Newzealand White and Soviet Chinchilla rabbit respectively.

27. Economics of breeding performance showed that both the breeds are well adapted to the environmental conditions of Barapani. The cost benefit ratio showed that rearing of Soviet Chinchilla is marginally cost effective compared to Newzealand White, eventhough both the breeds showed cost effective at Rs. 1484.00 and Rs. 1566.50 per month per 50 animals of Newzealand white and Soviet chinchilla rabbits. Hence the rabbit breeding can be well recommended for the N.E. Indian region.