FOUR INTERESTING ENDANGERED BREEDS OF ANIMALS IN CHINA

You-Chun Chen
Institute of Animal Sciences, Chinese Academy of Agricultural Sciences
Yuanmingyuan West Road No. 2 - 100094 Beijing, P.R. CHINA

SUMMARY
The Zhoushan and Hainan cattle, Hu sheep and Wuzhishan pigs are local domestic populations in China. Their ecospecific characters are unique. Zhoushan and Hainan cattle are different from each other, but both are zebu of the Chinese type, deriving from Indian origins. The distinctive pattern of coat colour for each of these two breeds and some blood serum polymorphisms show to a certain degree common factors with Bali cattle which are descendents of the gaur. Hu sheep are prolific and they are the only breed that shows oestrus cycles all year round in the world. Hu sheep are protected under the in situ conservation programme but still are in a critical situation due to the impact of the fast growing rural economics. There are less than 30 Wuzhishan pigs remaining, of which only 3 are boars. All of them are in ex situ conservation, but special attention is needed to protect them as a breed.

RESUME
Les bovins Zhoushan et Hainan, les ovins Hu et les porcins Wuzhishan appartiennent à des populations locales chinoises. Leurs caractères écospécifiques sont uniques. Les bovins Zhoushan et Hainan sont différents entre eux, mais tout deux sont des zébus du type chinois, d’origine indienne. La particularité de la couleur de la robe dans les deux races, ainsi que certains polymorphismes dans le sérum du sang, indiquent quelques degrés de facteurs communs avec les bovins de Bali qui descendent du gaur. La population ovine Hu est prolifique et c’est la seule à avoir des cycles d’oestrus pendant toute l’année. Cette population est protégée par un programme de conservation in situ mais, à ce moment, elle se trouve dans une situation critique due à l’impact de la rapide croissance économique rurale. Il existe moins de 30 porcs de race Wuzhishan, dont 3 mâles. Ils se trouvent tous en conservation ex situ mais une attention particulière est nécessaire pour les protéger en tant que race.

1.0 INTRODUCTION
Among six endangered Chinese breeds, reported at the 5th World Congress on Genetics Applied to Livestock Production, at the University of Quelph, Toronto, Canada, four are at the very critical state. They are the Zhoushan and Hainan cattle, the Hu sheep and the Wuzhishan pigs. In order to draw attention to the uniqueness of these breeds, some data overview is necessary.

2.0 ZHOUSHAN CATTLE
Zhoushan cattle are found in Dinghai, Putuo and Zhenhai counties which are the island and peninsula areas along the belt on the Zhejiang East Sea Coast. In this plain and hilly area the main crops are rice, cotton, sweet-potatoes, wheat and barley. As a draught animal, the cattle were used for rice paddy cultivation and irrigation, grain pulverising, oil pressing etc. Zhoushan cattle were introduced through trade from the Chuansha and Nanwei counties of the Shangai municipality 300 years ago, where there are Tangjiao cattle, distinguished up to about 10 years ago. Annual rainfall ranges from 1 260 mm to 1 490 mm, average annual temperature ranges from 16-30°C. Animals graze freely all year round.

Zhoushan cattle are mostly black, calves are born with a brown colour, which becomes darker
and black after weaning. Animals have a head with a short forehead, wide in the middle and a big muzzle, with horns development curving to different directions and some of them screwed. Horns are flat, square and thin at the base point and became round along the top. Bulls have a short neck. Both bulls and cows have well developed dewlaps, which are about 30 cm deep under the neck. The hump is high at neck-withers position for bulls, but small for cows. The trunk is deep, shoulders are very well developed, the back is not so wide. The legs are long and slightly sabre-shopped. The tail is of middle length, ending at 2-3 cm below the hocks.

**TABLE 1:**
*Means and standard deviations of weight and body measurements at adult age (1982 official data) (in kg and cm)*

<table>
<thead>
<tr>
<th>sex</th>
<th>animals</th>
<th>weight</th>
<th>height</th>
<th>lengt</th>
<th>chest circ.</th>
<th>canon circ.</th>
</tr>
</thead>
<tbody>
<tr>
<td>bulls</td>
<td>50</td>
<td>491.0 ± 70.3</td>
<td>136.8 ± 16.2</td>
<td>147.3 ± 8.7</td>
<td>189.9 ± 9.3</td>
<td>20.5 ± 1.3</td>
</tr>
<tr>
<td>cows</td>
<td>150</td>
<td>336.4 ± 50.7</td>
<td>122.5 ± 13.9</td>
<td>133.6 ± 8.1</td>
<td>170.3 ± 9.1</td>
<td>17.3 ± 1.1</td>
</tr>
</tbody>
</table>

The animals are good for ploughing paddy fields until 17 years of age, a cow is able to plough half a hectare within 8 hours' work. The population of Zhoushan cattle is estimated at less than 1 000 heads. No details are available in recent years.

The breed does not have any registration system and no measures have been taken to protect the possible loss of this unique breed. The coat colour is changing seasonally; this is a special characteristic of the *Bos banteng* originating from the Gaur.

**3.0 HAINAN CATTLE**

Hainan cattle are found on Hainan Island, mainly in Lialgshan, Chengmai and Haikou counties. In this tropical-subtropical area rice, peanuts, sweet-potatoes, sugar cane, cassava are the main crops. The average annual temperature is 24.5°C, the highest is 35.7°C, the lowest is 2.2°C. Annual rainfall ranges from 1 600 mm to 2 000 mm. Records in the Quiongzhou annals, show that 2000 years ago cattle were wandering here free, grazing and not afraid of human beings. Now the cattle are important for ploughing and transport, cattle-carriages are the common way of inter-village communications.

Most animals of Hainan cattle are brown-yellow coloured, others are black of varying shades, with black muzzle and ear tips, switch, hooves, eyelids and scrotum, and a very special back middle line as far as the tail end. Bulls are always darker than cows. Some animals have white spotted lines along both sides of the rump, which was reported as one of the coat specificity of *Bos banteng*.

Hainan cattle have a short head and wide muzzle. Bulls’ horns are straight or slightly curved. Cows’ horns are short or polled. Bulls have a hump, 13 to 17 cm high. Dewlap are well developed but with a few wrinkles. Hainan cattle were recognized as an original strain of the humped cattle in the world.

The Hainan cattle population was some 200 000 in 1992, but the Hainan province, as a special economic zone, has a very fast-growing industry and mechanized agriculture, which caused the number of cattle to drop dramatically. Since the end of the 80’s farmers have preferred pig or poultry industries rather than cattle, raising only a few thousand animals considered today as purebred Hainan.
4.0 HU SHEEP

Hu sheep are found around the Taihu lake at a border area between the Zhejiang and Jiangsu provinces neighbouring Shanghai and other major industrial developing zones. In comparison with other animal sectors in this area, Hu sheep, lamb skin producers have become less and less important for farmers’ operations. The annual average temperature ranges from 15°C to 18°C. In January the average is around 0°C, in July it is about 28°C. Yearly average rainfall ranges from 1 200 mm to 1 400 mm, relative humidity is 80%. In this region water-ponds occupy one fourth of the surface. There is no pasture available for sheep, all animals are kept and raised under cover.

Hu sheep are white, with some individuals being black or yellow, with pigmented eyelids and lower parts of the legs. Sheep have a long but narrow head with convex nose, eyes are prominent, ears are drooping. Both rams and ewes are hornless. The neck is long and the body has a long, level back, narrow chest, tall rear part. The legs are thin. Hair is rare at the abdomen. The udder is well developed. The tail is fat and of an oblate form with up-forward tail-tip. Body size is as follows:

<p>| TABLE 2: |
| Means and standard deviation of weight and body measurements at adult age (average data in kg and cm) |</p>
<table>
<thead>
<tr>
<th>sex</th>
<th>weight</th>
<th>height</th>
<th>length</th>
<th>chest circ.</th>
<th>canon circ.</th>
</tr>
</thead>
<tbody>
<tr>
<td>rams</td>
<td>65.8 ± 4.2</td>
<td>70.9 ± 5.6</td>
<td>82.6 ± 4.7</td>
<td>8.2 ± 0.6</td>
<td>48.6 ± 8.2</td>
</tr>
<tr>
<td>ewes</td>
<td>36.5 ± 5.7</td>
<td>61.4 ± 2.8</td>
<td>66.2 ± 4.1</td>
<td>79.5 ± 4.8</td>
<td>6.9 ± 0.7</td>
</tr>
</tbody>
</table>

The Hu sheep lamb-skins of 1-2 day old lambs are light with white colour, wavy and tight fitted. The wavy patterns vary depending on size. They are divided by categories: small (1.0-2.0 cm long), middle-small (2.1-2.5 cm long), middle (2.6-3.0 cm long) and large (3.1-3.5 cm long).

Ewes are able to give birth twice a year, 228.9% of lambing rate for one pregnancy. The top record for a single birth is 8 lambs. Ewes show oestrus all year round, a unique reproductive ability among sheep of the world. The pregnancy duration is 147.7 days on average. Spring and autumn are the best seasons for lambing. The Hu sheep population is going down dramatically due to crossing with mutton types of sheep. In the conservation flock, supported by the Government, only about 222 ewes and 10 rams are kept.

This traditional breed is especially interesting for its reproductive capacity, prolificity and all year round oestrus ability, but also for good quality lamb skin. The conservation Bock was established by the provincial authorities, but the breed is still in danger and less and less funds are available to keep the minimal size of the population. Some rams were used to cross with the Xinjiang fine wool sheep in order to improve the prolificity of litters. But such utilization is not enough for the necessary financial support in breed conservation.

5.0 WUZHESHAN PIGS

Wuzheshan pigs are the local breed of the province of Hainan; the tropical mountainous region of this island, a geographically isolated space. Pigs are not used as a main market supply, private farmers used them for self consumption. Boars were killed after first mating with little mates and mother-sows as well. Inbreeding has taken place for a long time. The climate is the one described for the Hainan cattle.
Wuzhishan

Hu
Wuzheshan pigs are black, but white at the abdomen and on the inner sides of legs. Pigs have a small head, long and tipped snout, narrow chest, level-back and loin, badly developed rump and long legs.

Adult sows are 50 cm to 70 cm long, 35 to 45 cm high, 65 to 80 cm around the chest and 30 to 35 kg in weight. Boars have first sexual behaviour at 1 to 1.5 months old, sows are pregnant at the age of 3 to 4 months and give one or two births a year. Due to the fast introduction of exotic pig breeds in the region hardly any people raise pigs of this breed for producing purposes. The pigs are now at ex situ preservation; 3 boars and less than 30 sows are raised.

Wuzheshan pigs are extremely small. The animals have strong recovering ability after surgical embryo transfer operations, used for better ex situ preservation. This breed is an appropriate laboratory animal and is investigated internationally as an interesting germplasm.

6.0 REFERENCES
Hainan cattle. White round inner side of rear end, specific of the Bati type cattle (*Bos banteng*)
LIVESTOCK PRODUCTION AND ANIMAL GENETIC RESOURCES IN CROATIA

R. T. Wilson
Bartridge Partners, Umberleigh, North Devon EX37 9A5, UNITED KINGDOM

SUMMARY
This paper describes the organization of livestock production in Croatia and briefly outlines the contribution of the various species of domestic livestock to the national economy. In the final part, the animal genetic resources of Croatia are described and the status of domestic animal diversity described.

RESUME
Cet article décrit l’organisation de la production animale en Croatie et brièvement la part de l’élevage de certaines espèces dans l’économie nationale. Dans une deuxième partie il présente les ressources génétiques animales de la Croatie et la situation de la diversité animale.
1.0 INTRODUCTION
Croatia had a population of 4 700 344 in 1991, covers about 56 750 km² and has 2 028 km of land frontiers with other states. It is bounded to the west by the Adriatic Sea, where it has a common frontier with Italy, to the northwest by Slovenia, to the northeast by Hungary, to the east by Serbia and to the south by Bosnia-Herzegovina (Fig. 1). There are three main regions: the Mediterranean or Adriatic region to the west; the mountainous region in the centre; and the Pannonian region in the east (Klemencic, 1993).

2.0 LIVESTOCK SYSTEMS
In 1989 about half of private farmers owned cattle but only 4.2 per cent had more than five cows; 52.0 per cent kept pigs but only 5.3 per cent had five or more sows; eight per cent kept sheep, 2.6 per cent owning more than 20 head; and 76 per cent kept poultry with less than one per cent having flocks of more than 100 birds. By far the largest numbers of cattle, pigs and sheep were kept on “average” size farms of about 3 ha but an increasing number of more commercially viable livestock farming units is emerging in the private sector.

There is some private sector summer sheep grazing in the Central Mountains and Continental Upland agroecological zones and some backyard poultry production. With these exceptions, most livestock production in both sectors involves year-round grain feeding in stalls. In the private sector, home-grown maize is the main feed, supplemented with wheat bran, oilseed cakes, beet pulp, brewers grains or other agroindustrial by-products and grass hay. Many larger private farms with more than 10 ha of land now use maize silage. Most animals have little opportunity for exercise, being continuously tethered in stalls in the case of cattle, held in small pens if pigs and loose housed in the case of in wintered sheep. There are obvious repercussions on animal welfare and health. Limited fenced areas currently restrict opportunities for grazing meadows or pastures in mainly arable areas.

With the exception of pigs, livestock numbers decreased between 1961 and 1990 (Fig. 2). In the period 1985-1991 pig numbers decreased from their peak but poultry and sheep populations increased marginally (Ralik, 1993). The populations decrease has generally been accompanied by a progressive improvement in productivity per head in most sectors.

Livestock offtake rates and slaughter weights, and egg and milk yields on a per head basis increased between 1985 and 1990 (Table 1). The cattle population decreased by 8.8 per cent in this period, possibly in part due to an increase in offtake from 30.3 per cent to 34.7 per cent. Cattle live weight rose marginally, resulting in a 12 per cent increase in beef production. Swine numbers fell by almost 20 per cent but total pork production rose by 7.8 per cent due to small rises in live weight at slaughter and of carcass yield per sow. Poultry meat production rose by about five per cent, due primarily to an increase in flock size, especially of the commercial ex-social sector, but 1990 production was down almost 16 per cent on the 1988 production peak. The number of eggs laid per hen in the national flock remained roughly constant at 130-135 eggs.
Istrian Podolic cow and bull

Figure 1: Croatia geographic map
3.0 ANIMAL GENETIC RESOURCES

3.1 Cattle

The cattle genetic resource now has very little diversity and what remains is probably being reduced still further. In contrast to many neighbouring and other European countries, where the emphasis is on “black and white” cattle and on outright “holsteinization”, Croatia’s main breed is the Simmental. This breed, regularly bolstered by bull and semen mainly from Austria, accounts for some 80 per cent of the national herd.

Ex-social sector farms own 94.4 per cent of the nation’s Holstein-Friesians, 2.3 per cent of Simmental and 3.3 per cent of crossbreeds. The average national yield of 4 811 Holstein-Friesian cows was 5 650 kg per 305-day lactation at 3.5 per cent fat in 1993. A total of 7 812 Simmental cows had average yields of 3 688 kg at 3.72 per cent fat. The weighted average annual yield of all Croatian cows (recorded and unrecorded) is estimated at 2 470 kg per year at 3.75 per cent fat.

A “Program on Cattle Raising in Croatia” sees genetic improvement being achieved by pure breeding. Simmental, Holstein-Friesian and “Brown” cattle will be the three principal breeds. It is also planned to improve desired characteristics by using Jersey and Red Holstein for milk. In order to obtain higher meat output, and in areas where cow-calf system can be developed or is developing, Charolais, Limousin and Aberdeen Angus bulls will be used. Very little effort is being devoted to conserving the native breeds of Croatia. The Agricultural Centre of Croatia-Centre for selection\(^1\) has the nominal responsibility for this task and for maintaining herdbooks and for in situ and ex situ conservation.

In the case of the Istrian Podolaz (Croatian = Istarsko rivece) it does have a stock of semen from three bulls. Istrian Podolaz were developed as heavy draught animals and are noted for their quietness, pulling power and ease of calving: growth rates are slow and milk yield is low although it is high in fat and protein. This breed, of the Grey Steppe type and said to be descended from and related to the Maremma cattle of Italy (French et al., 1966), is critically endangered. In 1986 there were 15 bulls and 500 cows of the Istrian Podolaz still extant: 50 females were registered in the herdbook, only 70 per cent were mated pure and effective population size was 25 (Simon and Buchenauer, 1993). Attempts are being made by a few farmers, constituted as a local Non-governmental Organization (NGO), to conserve a very small herd of cattle in its area of origin. In June 1994 this herd comprised two bulls, about 10 cows and 1 ox.

A small conservation herd of one bull and about 9 cows with 6 growers and 4 calves of the Slavonian Grey Steppe type, or Slavonski Podolaz, is being kept at Krizevci Lemas under the auspices of the National Breeding Centre (not to be confused with the Agricultural Centre of Croatia-Centre for Selection, which is a totally different organization). This herd was owned by various farmers before being gathered on the Djakovo agrokombinat. During the recent war the animals spent some time in Slavonia in eastern Croatia, then moved to Serbia before being moved to Istria and finally to their present site. The reasons for collecting this small group together, which is largely supported by Finvest (a Croatian forestry company), are to remove them from the war zones and to save them from being sent for slaughter and due to a sense of enthusiasm by a small number of people. The aim is to multiply the animals, by the use of semen and embryo transfer and to save it for posterity.

In contrast to the very limited efforts at conservation of the Grey Steppe breeds there appear to be none at all for the Busa (Croatia = Hrvatska busa). Mainly distributed in the southwest of the former Yugoslavia (Mason, 1988), there were small populations in the hilly karst hinterland of southern Dalmatia until very recently. Descended from the ancient Illyrian cattle indigenous to the area, the purebred Busa is a very small animal, bulls weighing not more than 400 kg with

\(^1\) Poljoprivredni Centar Hrvatske-Stocarski Selekcijski Centar
a withers height of about 120 cm, and cows averaging about 250 kg with a withers height barely exceeding 100 cm. The original triple purpose (traction-milk-meat) vocation of these animals and its small size have stood it in little stead in the modern world and there are now very few purebred animals left in Croatia.

3.2 Pigs

A pig production plan is in the course of preparation. The programme is primarily based on Swedish Landrace and Large White and production of their crossbreeds. A smaller hybrid programme intends a three-line and four-line mating system with Piétrain, Belgian Landrace, German Landrace, Duroc and Hampshire serving as terminal breeds. The production of 3.6 million fattening pigs from 182 500 breeding sows is foreseen under the new economic environment and through the application of modern management.

Pig production in the formal sector is thus based entirely on foreign blood. A few free-ranging, almost semi-wild, white and black spotted, indigenous Turopolje pigs (Croatian = Turopoljska svinja) survive in the flood plains of the Sava river south of Zagreb. The Turopolje originated from the Siska of southern Yugoslavia (itself a primitive, grey, prick-eared pig said to be extinct 1982) and Berkshire blood at the end of 19th Century (Mason, 1988). The population of this lard-type pig was estimated at 10 boars and 250 sows in 1986 with an effective population size of 19. These figures may be an underestimated as its native tract is one that was not subject to much collectivization of agriculture and therefore largely ignored by the former Yugoslav Government.

3.3 Sheep and goats

The official goal for sheep production emphases milk production in Istria and on some Adriatic islands, especially Pag, which in known for its long tradition of cheese production. This is to be achieved by crossing the indigenous Pramenka with milk breeds. Production of meat will be promoted in other parts of Croatia using lean-breed sires on Pramenka ewes.

Most sheep in Croatia are still mainly indigenous breeds or descended from early importations from other Mediterranean countries. A recent source (Simon and Buchenauer, 1993) lists two Croatian sheep breeds, the Lick Ovca and Paka Ovca, as potentially endangered and one, the Ruda Dubrovacka, as endangered. Both are ecotypes of the widespread and variable native Pramenka, a breed belonging to the Zackel group that is widespread in southeastern Europe (Mason, 1966). The open-fleeced triple purpose Pramenka has been extensively infiltrated in the recent past by Württemberg and Suffolk for milk production, Merino for wool and Sardinian, Friesian and Awassi for milk. Many of the crossbreeds and mixtures thus produced are now seen to be ill adapted to Croatian conditions, especially to the semitranshumant flocks in the private sector on the Mountain region and many breeders are now selecting back to the Pramenka type.

The so-called Balkan goat (Croatian = Balkanska Koza) is really a mixture of several local types and has been traditionally used as a dual purpose meat and milk animal. While probably never a particularly distinctive type in Croatia it has virtually ceased to exist due to crossing with the Saanen and Alpine breeds.

3.4 Poultry

Poultry numbers are almost at parity between the ex-social and private sectors, the former having 49 per cent of the national flock while the latter has 51 per cent. Production is very intensive in the ex-social sector and very extensive in the private sector. Some ex-social sector farms, and especially some now privatized veterinary practices, import parent stock as day-old from the main hybrid poultry producers in Western Europe to produce eggs for sale within Croatia. The commercial domestic fowl sector does, in fact, comprise mainly imported hybrids. There is a mix of degenerate hybrids and traditional breeds (including a bare-necked variety known in Croatian as Golurratke kokos) for farmyard production.
Croatian Busa

Pramenka ram
Figure 2:  *Animal population number changes (1961-1990)*

**Number of animals (thousands):**
- **Swine**
- **Ex-social**
- **Cattle**
- **Sheep**
- **Horses**

**Number of birds (millions):**
- **Poultry**
3.5 Horses

Horses are now of relatively minor importance as work animals but in the new economic climate there is renewed interest in the private for sport and leisure. The preferred breeds being the Lipitsa (Lipica) which has a stud at Dakovo in Slavonia, and various strains of Trotter, Thoroughbred and Trakehner. Official policy sees horse husbandry based on existing breed composition. In economic terms, the Croatian Draught Horse or Cold-Blood (Hrvatski hladnokrvunjak) is considered suitable for production and export of meat.

Numbers of the Croatian Draught were estimated at 55 stallions and 100 mares in 1986 with an effective population size of 97. Its recent status is considered “minimally endangered” (Simon and Buchenauer, 1993) but the reality is probably much more serious. The breed has, for very many years, been “improved” by Belgian stallion, mostly of the Ardennes type. Indiscriminate crossbreeding with all other types, mostly light carriage and riding strains, of horses in Croatia is a major problem. A conservation herd is belatedly being established at Krizevci Lemas with mares rescued from war areas and bought or loaned by farmers. There is as yet no stallion and there are no semen or embryo banks.

There are remnants of a Posavina breed of a draught horse around Sisak (Kovac, 1994). This virtually and known horse has survived in this area for the same reasons as the Turopolje pig; official interest in a non-collectivized area was virtually nil and the breed was subject to little interference. The future for this horse is now perhaps brighter with the recent creation of a breeders society and the establishment of a herdbook under the auspices of the Agricultural Centre of Croatia-Livestock Selection Centre.

The Bosnian Pony maintains a precarious foothold in parts of Dalmatia but its future survival, in the absence of interest and conservation programmes, must be in serious doubt.

3.6 Dog

The Croatian sheepdog (Hrvatski ovcar) is a small, black, curly haired dog with erect ears turned over at top and an erect tail. It is used by the Pramenka sheep breeders as a flock and guard dog, mainly in the central Mountains area. In spite of some indiscriminated breeding it is not seemingly in danger.

4.0 REFERENCES


### Table 1: Croatian livestock populations and productivity, 1985-1990

<table>
<thead>
<tr>
<th>Item</th>
<th>Year 1985</th>
<th>Year 1986</th>
<th>Year 1987</th>
<th>Year 1988</th>
<th>Year 1989</th>
<th>Year 1990</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carcass weight at slaughter (kg)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Beef</td>
<td>219</td>
<td>224</td>
<td>218</td>
<td>209</td>
<td>216</td>
<td>214</td>
</tr>
<tr>
<td>- Pork</td>
<td>76</td>
<td>77</td>
<td>76</td>
<td>75</td>
<td>76</td>
<td>73</td>
</tr>
<tr>
<td>- Sheep</td>
<td>12</td>
<td>12</td>
<td>13</td>
<td>12</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>- Poultry</td>
<td>1.4</td>
<td>1.4</td>
<td>1.4</td>
<td>1.3</td>
<td>1.4</td>
<td>1.4</td>
</tr>
<tr>
<td>Other production parameters</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Cow annual milk yield (1)</td>
<td>1884</td>
<td>1867</td>
<td>2003</td>
<td>1992</td>
<td>1941</td>
<td>1931</td>
</tr>
<tr>
<td>- Annual egg production/hen</td>
<td>132</td>
<td>131</td>
<td>134</td>
<td>136</td>
<td>136</td>
<td>133</td>
</tr>
</tbody>
</table>