Comments on: ...Livestock systems based on crop residues in China by Guo Tingshuang and Yang Zhenhai

From Bob Orskov <ero@rri.sari.ac.uk>

The paper by Guo Tingshuang and his colleague is of great interest to many and I therefore think that it would be useful if the authors could explain to others why it has been so successful.

No doubt the institutional support has been a great factor in the success story but no doubt there are many other factors not immediately obvious to others. For instance:

1. What is the cost of urea relative to other feeds above which it would be of no economic interest?
2. Can fluctuating prices of beef be a problem?
3. Are beef prices uniform so that farmers can be sure of a return on investment after a relatively long fattening period?

I am familiar with the work but I think it would be useful for the readers if the authors could give an explanation of their success.

E R Orskov

From Guo Tingshuang, China

Answer to Bob Orskov's comments on the paper (Eighteenth paper: New developments in livestock systems based on crop residues in China)

More details on our experience can be found in our paper delivered at the International Conference on Increasing Animal Production with Local Resources, Beijing, 1993.

The support of central government is one of the main factors of the success. After many years' efforts, we have made the top leaders believing that the use of crop residues is the only way to increase animal production with non-grain feed resources in China. From 1992 to 1996,

we held four national conferences (in the name of the State Council), calling for the extension of "animal production based on crop residues". We also established 164 demonstration counties with central government's funds. In 1996, the "National Development Programme for Livestock Production Based on Crop Residues Project 1996-2000" was issued by the State Council. Therefore, our technical extension with administrative means is the most important successful factor.

With reference to Bob Orskov's questions:

1. The current price (in Chinese "Yuan" per ton) for urea and other feeds is as follows:

Urea	2,000
Soybean cake	3,080
Corn	1,370
Fish meal	5,860
Cottonseed cakes	1,400

Urea (market price) is not expensive as compared with other feeds. Its price can be even lower (1350 Yuan.ton) if urea is used for technical extension. Therefore farmers do get profit from urea-treated straw.

2. and 3. Beef prices are fluctuating in China but with less changes than for other animal products. Farmers can be sure of a return on investment after a relatively long fattening period. Because the labour cost is very low, cotton seed cakes are cheap (1,400 Yuan/ton) and the straw is even free of charge if the herd is not big and if the farmers just use their own straw.

Guo Tingshuang

From: "E. R. Orskov" <ero@rri.sari.ac.uk>

Supplementary question on paper by Guo Tingshuang (Eighteenth paper: New developments in livestock systems based on crop residues in China)

I wish to thank Dr. Guo Tingshuang for giving us the price ratio of urea to that of other feeds which, together with the surplus and therefore cheap straw available on many small farms, helps to make the treatment

economically interesting for the farmers.

One of the most impressive aspects which needs commenting upon is the ability of the Chinese yellow cattle to consume straw in large quantities as they virtually fatten on 80% treated straw diets.

I would like to ask a supplementary question relating to supplements. In the original work you have published in 2 papers in Livestock Research for Rural Development, a mixture of wheat bran and cottonseed cake 2:1 was used at the rate of 1Kg per day and the animals had growth rates between 650 and 800g/d, which is impressive for the small cattle. In some areas or provinces, cotton seed cake is cheap and available and can be used in a high proportion. In other areas, it is not available or not cheap.

What are the present recommendations as to level and type of concentrate to be used in different regions as supplements to treated straw diets for fattening Chinese yellow cattle?

I think this will be of interest for many readers as few types of so-called improved cattle can consume and fatten on such a high proportion of straw.

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From Guo Tingshuang

Answer to Bob Orskov's supplementary question on his paper

1. The ability of Chinese yellow cattle to consume straw in large quantities has been proven by lots of Chinese farmers' practice. But there is no strict feeding test to compare such ability between yellow cattle and western cattle.

2. Originally, the supplement was a mixture of wheat bran and cottonseed cake 1:2 according to FAO experts' recommendation. Later, it was changed to 100% cottonseed cake on other FAO experts' suggestion. The performances of the two supplements are just similar. It seems that 100% cottonseed cake is a little better. Some feeding tests reported in my

published papers showed that the daily gain was 504-602g when 1 kg per day supplement is fed to cattle. The daily gain did reach 650-800g.
3. Cottonseed cake or rape seed cake is available and cheap in most parts of China except northeast (very cold area) and south China (tropical area).
4. We recommend "ammoniated straw + cottonseed cake" as the basic diet for most parts of China. The quantity of supplement per day per head is 1-2,5 kg according to the market price of cottonseed cake, straw, urea and fattened cattle.
5. Improved cattle can consume and fatten on high proportion of straw. Still, the concentrate should be a little more. Usually the market price for improved cattle is better than local yellow cattle. We still have to do some feed tests to compare the ability of consuming straw between yellow cattle and western cattle.

We will be pleased to answer any supplementary questions.

Guo Tingshuang

From George Chan <100075.3511@compuserve.com>
Additional comments on Guo Tingshuang's answer to Bob Orskov's supplementary question on his paper
The best use of cottonseed wastes is as substrate for simple mushroom growing in the backyard of the farmhouse, and then the enhanced residue can be used as livestock feed. This allows the farmer to make a good income while breaking down the lignocellulose and making the crop residues more digestible and even more palatable as a feed. This is what we are doing in our Integrated Biomass Systems in the UN University Zero Emission Research Initiative (ZERI) program, with the World Authority on Mushroom helping us.

I seize this opportunity once again to remind everybody that livestock and fishery should only be fed with crop and processing residues which are not suitable for human consumption, after enhancement with microbial processing at the grass root level. It is sheer lunacy to use

produce and raw materials suitable for human consumption or value-added processing as livestock or fishery feed, when we have so many people dying of hunger and malnutrition every day around the world.

In other words, NO land should be used just to grow livestock feed, as it is needed for food production first, and whatever residue unfit for human consumption or for simple processing into useful products for profit will then be fed to animals, birds, fish and shellfish.

For 32 years, this is what I have been doing in the field, and not just talking about it. There is also too much talk and not enough action.

George Chan