Impact of climate change on livestock husbandry

Wolfgang Bayer, Göttingen

Climate changes

- Some models suggest temperature increases at poles far greater than at equator
- More extreme events (rainfall, storms, heatwaves, etc) predicted
- Large variations make statistical proof of change difficult, especially in drylands
- Higher utilisation rates and more extensive/expensive infrastructure

Livestock systems classifications

- According to species (cattle, sheep, goats, pigs, poultry, horses, camels, bees, fish etc)
- ruminants-non-ruminants
- According to main production traits (milk, meat, eggs, fibre, draft)
- Intensive-extensive
- Commercial-subsistence
- Pastoral/grazing-mixed-industrial-backyard

Backyard

- Very diverse, many animal species (poultry, pigs, small ruminants, dairy animals, rabbits, cane rats, pigeons)
- Variable feed resources, often food leftovers, strong links to other forms of animal husbandry
- Trends: linked short term to economic development,

Climate change effects: little, mostly new diseases

Industrial

- Few animal species (mostly pigs and poultry)
- Monopoly games (4 firms determine chicken supply worldwide), uniform animals (biodiversity!)
- High feeding inputs (1/3 of grain production goes into trough) , uniform feed, bought
- Fastest growing form, cheap products
- Problems with manure, no cycling

No direct influence of CC, indirectly possible increase in feed bills

Mixed

- Most widespread form of animal husbandry (600 million smallholder families)
- Most diverse category (from near industrial to small-scale subsistence farms)
- Wide range of animals and uses, manure, draft
- If concentrate feeding, raw material often grown on farm
- Impact of climate change: new diseases, impact on feed/forage (+/-), possibly need for animals with more effective thermoregulation

Pastoral

- Large areas, but mostly marginal land, not suited for cropping, natural vegetation, finite resources
- Extent not entirely clear (100-300 million people)
- Highly variable climate, little growth potential for production

Effects of climate change: shrinking (wetter) or expansion (drier) of pastoral areas, land cover changes (shrub encroachment), forage quality (change of C3/C4 plants), disease

Other pressures

- Low prices, trade barriers and opposite (chicken parts from West Africa), competition between systems
- Expansion of national parks, reduction of grazing areas
- Expansion of irrigated & rainfed farming, land-grabbing
- Animal welfare, anti-meat campaign
- Population increase

These pressures felt by many livestock-keepers to be far more important than climate change

Examples of livestock-related innovation / adaptation

- Camel marketing in East Africa
- Camel milk sales (camels also kept in town)
- Cheese making in West Africa
- Donkey draft in South Africa
- Chicken nests from unconventional material

None of these innovations directly related to climate change