

Take nature more seriously when it comes to sustainable farming

By Joe Gaugler for the 21st Rangeland Forum from the 17th – 19th July 2017 in Otjiwarongo, Namibia

Ladies and Gentleman!

It is my personal feeling, that I must share with you my experience which I gained in my nearly 40 years of farming. My opinion may differ from all your views, but believe me; I see them as a secret to farming success. My farm is in an area which is totally different from here, but I am sure that the most principles can be applied country wide. This Rangeland Forum where I am a new member off is the first instance, which might totally turn our thinking and management in another direction and our private sector or organised Agriculture Union should seek ways and turn it into a permanent organisation with enough money to sustain. Thanks to the Potsdam University for this important step in helping us with this matter and thanks to Mr Mecki Schneider for leading this process.

Every farmers approach to farming in Namibia should be to survive the dry season and the droughts, which are not abnormal in Namibia. In the southwest of Namibia 4 out of 10 years are above average rainfall, which will be more than 150mm. So we must always do our best to survive the 6 bad years. Luckily they are not always in a row after each other.

In my beginner years, I realised that whenever I wanted to sell animals, they were always to lean and buyers never wanted to pay a good price, so I nearly had to give them away for nothing and there was no profit. I decided to change it for survival. I had three camps in which I had weight gains, although being in a dry spell. I went to these camps and started to look which where the preferred plants eaten by the animals. These were the plants, which were first grazed:

Bush

Salsola apylla

Cadaba apylla

Calicorema capitata

Boscia foetida

Zygophyllum (4 types)

Monechma (3 types)

Pteronia (3 types)

Pentzia

Gras

Setaria appendiculata

Panicum arbusculum

Cenchrus ciliaris

Anthephura Pubescens

Eragrostis Nindensis

Then I went to the rest camps and I tried to grade them into 1 to 5 stars. Five star meaning that all these plants were available in this area. I took two of the bush species and ask the agent to analyse the plants for the protein content. The bushes SALSOLA and CALICOREMA had a digestible content of 11%. I knew the minimum digestible protein should be not less than 7% for maintenance alone.

By then I saw that I have to redefine the word “veld”. It is not grass alone, except in countries where it’s green throughout the year. In Namibia it can only consist of a mixture between good perennial grasses and bushes with high protein content. It can also not exist of one bush specie alone, because most bushes, if taken in, too much can be poisonous, because of a sometimes high percentage tanning acid or other restraining factors. The more bush species available, the higher the digestible protein available. The right composition of bush will build up the animal immunity against ticks and worms and will put you in a situation to produce a high standard of organic meat. No country could beat us here with organic meat production.

Now, farming might get easier. We know that we can lessen one of our main input costs – fodder and lick. You see if we continue farming like we did for all the years, every drought will be more devastating than the preceding one.

Did you forget all the losses of the last drought? It will even get worse! What are our options? We must change our grazing system and we must look at de-bushing and the consequences. The main reason for losing our nutritious, valuable and edible bushes is in my opinion continually grazing and bad fences.

Why change the grazing system?

For us Namibians seeing landscapes covered with the lovely shining grasses (STIPAGROSTIS UNIPLUMIS) is the highlight of our rainy season and as long as we think we can leave animals in the camps to graze it off totally we are farming backwards. If our fences are in a bad condition and after taking farming animals out of the camp, game will still be grazing there. In a dry season the UNIPLUMIS protein content will be between 2% and 4%. In my eyes, animals grazing in this condition will be losing weight, which means no production and longer calving / lambing intervals, which will result in a lower average national calving / lambing percentage. By giving lick we will continue destroying plant diversity and by not giving lick we destroy productivity of animals.

If we look at the whole picture, we see that nearly 80% of our grass in Namibia might be UNIPLUMIS. Then we know that by letting animals stay in those areas too long, would make all good protein bushes disappear. Scientist and information books for instance, show that SALSOLA is not a bush for the east and that it only is indigenous to the west, I doubt this very much. I have seen big grass farms, even west of my farm, which used to have SALSOLA some 40 - 50 years ago. These bushes have al disappeared because of overvaluing STIPAGROSTIS CILIATA, which I would put in the same category as UNIPLUMIS. By overvaluing the STIPAGROSTIS the farmers think they don’t have to give lick at all and by doing so, they even worsen the problem and the number of the UNIPLUMIS polls will increase which will end up in a vicious circle with destroying our high protein plants.

There must have been a reason 40 years ago for calling STIPAGROSTIS UNIPLUMIS → ARISTIDA UNIPLUMIS. If you compare these two, you will see that both are having leaves which have the same thickness of stems and therefore can't produce nutrients the same way perennials with their broad leaves can. I think the biggest mistakes we did in our country is to classify this grass as a sub climax grass, only because Namibia is covered by it. We should see this grass (UNIPLUMIS) mainly as ground cover for better ground health and water absorption.

The moment we see the good perennials like ANTHEPHORA PUPESCENCE, SCHMITDIA PAPPAFOROIDES, SETARIA APPENDICULATA and CENCHRUS CILLIARIS infiltrating our vast STIPAGROSTIS plains we should stay in this camps for only as long as we don't take off more than 50% of these plants. A better way of using this grass plain would be by cutting (if possible) it and keeping the fences after cutting totally closed. At the same time, we should protect our important protein bushes like BOSCIA, SALSOLA, CADABA and bushes you identify as being in the same category. This should go alongside with de-bushing where you will most probably have a gross income for coal off about N\$ 30 per 10cm tree.

This money could be invested in suggestions above. If you don't have this kind of bushes, you should think of in seeding or in planting them. Farmers could even think of letting new entrepreneurs grow seedlings of these plants to establish on their lands. People would say now: "You can't grow bush out of the south in the north. Bullshit! One rare but very important bush, ADENOLUBUS GARIPENSES is even grown in Europe, why not in the north?" It would be even possible to harvest young seedlings in some protein bush encroached areas in the south. (Possible work opportunity for unemployed in the south)

The different steps where your situation is found in could be one of the following:

1) Farmland that is uncovered (only sand and stone):

If you see lower grade grasses as coverage plants, it will not happen. Buying of additional fodder/lick is very important, but destructive for your financial base and to left over plants.

2) Farmland is covered with UNIPLUMIS together with ACACIA MELLIFERA / RHIGOZUM TRICHOTATUM:

No growth gain, but a lot of weight loss without lick in dry seasons.

3) If your farmland consist of 50% UNIPLUMIS / 50% Perennials broad leaves grass:

You will maintain your weight and in good years you will have an increase. Minimum of lick is necessary, but important. Good protein bush will come back eventually.

4) Good perennial cover of different grasses and good, strong, protein bushes of at least 5 different types:

This is a top farmer, would gain weight in dry seasons as well as in droughts, no droughts will get them under. You have to give lick or no lick only to steer your plant

composition in a certain direction. For example if you have a SALSOLA grass camp you should not graze it off in a rainy season because of the high protein content in grasses. The good bush might tend to lead you to a further bush encroachment. Camps that consists of grass only, should only be grazed off in rainy season, except when perennial grasses slowly getting established.

Remember only grass or only bush are both not our aims! And where you are from point one to four is only your decision and when we can get to number four, the impact on our country will be incredible. Subsidies will be something of the past and we will really add to national growth and wealth. If you are buying or selling land, you should take these four points to decide on the price of the farm. Point number four should be double the price of point number one. If the farm is covered only with UNIPLUMIS in good years, it could probably be in the first category.

How to start changing my grazing system?

- Look for a selected small area on your farm, which meet the most requisite condition.
- It must be surrounded by a good mesh fence to keep all animals out.
- De-bush it, but keep the minimum bushes and conserved bushes.
- Start in seeding or in planting – bushes as well as grasses – might be necessary to give water at the beginning.
- Try to use it only by cutting, to give a diverse amount of perennials a chance to establish or avoid bushes from being browsed off totally.

How much bush do I plant, to meet the needs of my animals?

Cattle farmers:

- Cattle average 500kg of life weight in a 1 cow to 12 ha area.
- We know that they need 3% feed of life weight per day, which is 15 kg.
- We work on a 50/50 grass/bush intake ratio, which should give us a weight gain of about 3kg per month, so we have 7.5 kg of different bush and 7.5 kg of grass per day.
- The digestible protein (DP) content of this mixture is:
7.5 kg bush at average of 10% DP = 750 gram per day
7.5 kg grass at average of 4% DP = 300 gram per day
Total DP = 1050 gram per day
- On a 500kg animal we work on a minimum of 7% DP on a daily intake of 15kg feed, which is **1050 gram (15x7%)**, enough to maintain productivity.
- Per month we need 225 kg of grass which is equal to same amount per ha.
- Per month we need 225 kg of bush which is equal to same amount per ha.
- A bush from which the harvest is 250 gram (medium bush) we would need 900 bushes / ha.
- A bush from which the harvest is 1 kg (large bush) we would need 225 bushes / ha.
- Important that these 900 or 225 bushes would consist of 5 or more different species.

- If you succeed in a 1 to 12 area with above recommendations, I would assume that a low rainfall between 140 – 180mm will give you enough feed to sustain, although you are having a drought.

Sheep farmers:

- Sheep average 50kg of live weight in a 1 sheep to 6 ha area.
- We know that they need 3% feed of life weight per day, which is 1.5 kg.
- We work on a 50/50 grass/bush intake ratio, which should give us a weight gain of about 300 -500 gram per month, so we have 0.75 kg of different bush and 0.75 kg of grass per day.
- The digestible protein (DP) content of this mixture is:
0.75 kg bush at average of 10% DP = 75 gram per day
0.75 kg grass at average of 4% DP = 30 gram per day
Total DP = 105 gram per day
- On a 50kg animal we work on a minimum of 7% DP on a daily intake of 1.5kg feed, which is **105 gram (1.5x7%)**, enough to maintain productivity.
- Per month we need 22.5 kg of grass which would mean 45kg per ha.
- Per month we need 22.5 kg of bush which would mean 45kg per ha.
- A bush from which the harvest is 80 gram (small bush) we would need 562 bushes / ha.
- A bush from which the harvest is 250 gram (medium bush) we would need 180 bushes / ha.
- A bush from which the harvest is 1 kg (large bush) we would need 45 bushes / ha.
- Important that these 562 or 180 or 45 bushes would consist of 5 or more different species.
- If you succeed in a 1 to 6 area with above recommendations, I would assume that a low rainfall of 80mm will give you enough feed to sustain, although you are having a drought.

Conclusion:

For me farming in a semi dessert and be able to survive 3 – 4 bad years with fat productive animals, makes me sleep good the most of the night. Bad years doesn't mean no rain and you have to be farming with a good adapted animals, which took me almost 15 years to breed. The snowball effect from farming this way is growing your profit as well as benefiting the next generation in their survival on a farm. If you put money into expensive breeding animals, I see no reason, why you should not invest in your most important asset – your plants. I hope that I have at least convinced one farmer, who will try it my way. Remember these are only ideas and not proven facts. **Good luck!**