

## **The Basics of Production Ostrich Nutrition, Part 2**

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### **INTRODUCTION**

Having the correct formulations is only the first step of the complete production nutritional program. The science of livestock production covers the whole production process:

1. Nutrition
2. Feed Management
3. Farm Management
4. Genetics

As has been proven by all those to date who have worked hard with items 2, 3 and 4 it is most difficult to succeed unless item 1 is also in place. We have also witnessed a trend that, with so many entering ostrich from non-production livestock backgrounds or countries unfamiliar with modern production techniques, the detailed aspects of items 2 and 3 are not fully understood as they relate to Ostrich. This is particularly true of Ostrich as a result of their sensitivity to what will be deemed minor changes in most other specie.

Having read the above, there will be some who may be concerned that talking in terms of 'modern livestock production technology' may be seen as breaking the rules of 'clean and green' and moving towards what may be considered 'factory farming'. This in fact could not be further from the truth provided all the rules are fully understood and followed. Remembering how little Ostrich eat per day, their sensitivity to what may seem like minor changes in the domestic environment the best we can do for our birds is to control feed to ensure maximum intake of all the required nutrients for optimum health. With optimum health comes productive performance and production of products that are a credit to these magnificent birds.

### **FEEDING RATES**

We all look at the nutrient levels of a ration to determine its adequacy (Protein, Fat, Fibre levels for example). What is too often overlooked is that a ration is designed with a particular task in mind. Rations will be formulated to provide adequate body maintenance (adult survival), plus it will be based on certain production parameters such as egg production, chick hatchability and survival through egg yolk nutrient transfer. A production ration will also include parameters for replacing lost body reserves in breeding stock after a long year of egg production. A Production ration has a PLAN that fits the nature of the production. As covered in the previous paper, this is much more than just keeping the birds alive!

To achieve these, the nutritionist will be ensuring that the birds achieve the correct **intake** of specific nutrients. This is done through the ration having the correct nutrient levels and to be fed at a specific feeding rate.

A ration is made up of different ingredients that provide a number of nutrients. One common error is to consider all Lucerne as the same. Table 3 demonstrates the differences in qualities of Lucerne. Soymeal is another ingredient that can come in different qualities. Note that not only does the protein level change, so do all the other nutrients. All these ingredients contribute many other nutrients to the ration as well.

Ostrich Feed Formula	% Total Feed	Protein	Fibre	Calcium	Phosphorous
20% Quality Lucerne	38%	7.6%	9.00%	0.61%	0.11%
Rest of Formula	62%	13.4%	2.12%	1.39%	0.89%
<b>Total Feed Formula Ingredients</b>	<b>100.0%</b>	<b>21.0%</b>	<b>12.0%</b>	<b>2.00%</b>	<b>1.00%</b>

Table 1 – Example Ostrich Breeder Ration with 20% Lucerne

In Table 1 the rest of the formula will be made up of the other feed ingredients, Grains for energy...maize; protein feed ingredients...soyameal; Fat...vegetable oil; Vitamins and Minerals and maybe certain other productive ingredients as discussed in Session 8. This ration is formulated around 20% Quality Lucerne to achieve the target values as in Table 2.

Ostrich Feed Formula	Protein	Fibre	Calcium	Phosphorous
<b>Total Feed Formula Nutrients</b>	<b>21.0%</b>	<b>12.0%</b>	<b>2.00%</b>	<b>1.00%</b>

Table 2 – Example Ostrich Breeder Ration Target values

Table 3 demonstrates the significant variations in nutrient values between lucerne of different qualities.

Item	Protein	Fiber	Calcium	Phosphorus
13% Very Mature Lucerne	13.0%	38%	1.18%	0.19%
15% Mature Lucerne	15.0%	34%	1.30%	0.21%
18% Average Lucerne	18.0%	29%	1.40%	0.24%
20% Good Lucerne	20.0%	26%	1.60%	0.29%
22% Premium Lucerne	22.0%	23%	1.80%	0.32%

Table 3 – Comparative Nutrient Values of different Grades of Lucerne/Alfalfa

Table 4 demonstrates the dramatic change in nutrient levels of the finished rations if an ingredient is substituted without changing the formulation. These changes are very significant. Many rations currently published do not specify the quality of the lucerne...simply call for lucerne. It is also important not to substitute any other ingredients without making the necessary adjustments to the formula.

Ostrich Feed Formula	% Total Feed	Protein	Fibre	Calcium	Phosphorous
13% Very Mature Lucerne	38%	2.9%	14.44%	0.45%	0.07%
Rest of Formula	62%	13.4%	2.12%	1.39%	0.89%
<b>Total Feed Formula Ingredients</b>	<b>100.0%</b>	<b>16.3%</b>	<b>16.56%</b>	<b>1.84%</b>	<b>0.96%</b>

Table 4 – Example Ostrich Breeder Ration with 13% Lucerne

The nutritionist, for this exercise, has designed this ration to be fed at a rate of 2.1kg/day to achieve optimum health and production of the birds it was designed to feed. To calculate the nutrient intake – take the percentage in the ration and multiply by the total daily intake. For Protein – if you multiply 21.00 (protein content of the ration)

by 2.1 (daily feeding rate) it equals 0.44kgs per day of protein. The same calculation is applied to all nutrients in the ration... Table 5

	kgs/Day	Protein kgs	Fibre kgs	Cal gms	Phos gms
<b>Feeding Rate/Day</b>	<b>2.1</b>	<b>0.44</b>	<b>0.25</b>	<b>42.00</b>	<b>21.00</b>
Under Feeding – 5%	2	0.42	0.24	40.00	20.00
Under Feeding – 15%	1.75	0.39	0.21	35.00	17.50

Table 5 –Total Daily Nutrient Intake

To underfeed by .1kg (100 grams), which does not sound like a significant amount, is in fact 5% and very significant to the birds. This will have an impact on performance.

Many farmers use a can or similar as a measure. They weigh it once and use that measurement for all feeds – especially when feeding the breeder birds. This does not work as ration density can differ considerably, both from batch to batch and within the same batch. Personally I have experienced a variation of up to 17% with the same rations. We cannot emphasise the importance of this aspect of feed management enough. Remembering how precisely poultry producers measure everything, I remind you again of **Figure 5** in Bulletin No. 83 that illustrates the density of an Ostrich ration and therefore the sensitivity to what may seem like very minor changes.

### Understanding Wet Feeds

Now that we have covered ‘feeding rates’, it should be easier to understand how difficult it is to feed wet feeds accurately and still achieve optimum health of the birds. There are a number of areas where grazing, the feeding of silage, root crops, chopped vegetables or fresh chopped lucerne or grass form part of the rations. It is believed that these provide cheaper ingredient costs. When introducing ingredients with high moisture content, ensuring the **correct daily intake** of all nutrients requires a very high standard of feed and farm management. Personally I would not take the risks. It is also worth noting that these are not productive ingredients and most mentioned above are not good ingredients for Ostrich if optimum health and production are required. I have personally seen a number of birds grazing grass that are, at best, unthrifty in appearance and stunted in growth.



Figure 1 – 4 Mth Chicks raised on Grass and supplement



Figure 2 – 4mth Chicks Control fed

Figure 1 and Figure 2 are photos of chicks at 4mths of age. Note the significant difference in growth rate and general well being of the birds

When discussing nutrient levels of different feeds or ingredients you will hear two terms used: 'Dry Matter Basis' and 'As Fed Basis'. When dealing with commercial complete feeds the feed Label will be providing the analysis on an 'As Fed Basis'. Table 6 provides details of the dry matter content of different ingredient types. The point to remember here is that the nutrients are in the Dry Matter portion of these ingredients. The balance is moisture.

Basis	Ingredient	Dry Matter Content %
DRY MATTER BASIS	All Ingredients	100%
AS FED BASIS	Commercial Feeds	88% - 90%
	Grains	
	Dried Hay	
	Lucerne Meal	
	Grass Meal	
	Fresh Grass	10% - 20%
	Grass Silage	15% - 30%
	Maize Silage	28% - 42%

Table 6 – Comparative Dry Matter Content of Ingredients

Grass is extremely variable and requires **very high standards of management** if it is to be used as part of a ration for ostrich to achieve **optimum health and productivity**. It is not a 'free' feed as many consider it to be. Grass can be simply ground cover and not managed to provide a 'green' feed lot. Used in this way the little grass that the birds may eat when fed a complete ration that contains all the right nutrients will not upset the birds required diet greatly - as the nutrient value is very low and the moisture content high. If using grass as part of the ration, that grass must be extremely well managed. The variety must be known, it needs to be fertilised correctly and reseeded on a regular basis, kept trimmed and the growth fresh. Grazing has to be managed. The daily intake of grass will vary from bird to bird as will the balancing concentrate. These we cannot control. Inconsistencies in health and performance will occur, with resultant loss of production.

Whatever the 'wet feed' one is using as a forage, working with these types of feeds requires extremely high levels of Feed Management and awareness of the implications of the extreme variations in 'Dry Matter'. Tables 7 and 8 are **simplistic** examples to explain this and assume direct replacement of hay for silage and exactly the same analysis of 'Dry Matter'. Please remember that in practices it is NOT possible to simply substitute one for the other...adjustments in the rations will need to be made.

Example 1 is a typical complete 'Dry Feed' - with the forage portion shown separately. The Concentrate will be the rest of that ration - the Protein, Energy, Fat, Vitamins and Mineral ingredients. The important factor to note here is the percentage of 'As Fed' and 'Dry matter' are exactly the same.

Example 2 the Hay has been substituted for a 'Wet Feed' at 20% 'Dry Matter' (80% Moisture). The forage portion changes from 37.5% of the ration to 73% of the ration in order to achieve the SAME value of Nutrients in 'Dry Matter'. The difference is made

up of moisture (water). The 'Daily Feeding Rate' (Table 8) has changed from 2.1kg/day on an 'As Fed' basis to 4.85kg/day, to achieve the same total 'Daily Dry Matter Intake' of the same nutrients. NOTE the DRY MATTER intake has not changed.

	Dry Formula		As Fed DM	Kilos of 'As Fed' Ration required to make 1tonne of dry rations.		As Fed Formula %
<b>Example 1</b>						
Forage Hay	375	Divide	90%	416.67	Divide by <b>1111.11</b>	<b>37.50%</b>
Concentrate	625	Divide	90%	694.44		62.50%
	1000			<b>1111.11</b>		100.00%
<b>Example 2</b>						
Forage Silage	375	Divide	20%	1875.00	Divide by <b>2569.44</b>	<b>72.97%</b>
Concentrate	625	Divide	90%	694.44		27.03%
	1000			<b>2569.44</b>		100.00%

Table 7 - Comparison Forage Adjustment Dry Feed vs. Wet Feed

Feed	Dry Formula	DM Daily Intake kg		As Fed DM	As Fed kg
<b>Example 1</b>					
Forage Hay	375	0.7	Divide	90%	<b>0.8</b>
Concentrate	625	1.2	Divide	90%	1.3
	1000	1.89			<b>2.1</b>
<b>Example 2</b>					
Forage Silage	375	0.7	Divide	20%	<b>3.5</b>
Concentrate	625	1.2	Divide	90%	1.3
<b>Example 3</b>					
h Green Forage	375	0.7	Divide	10%	<b>7.1</b>
Concentrate	625	1.2	Divide	90%	1.3
	1000	1.89			<b>8.4</b>

Table 8 - Comparison of Total Daily Intake Required on As Fed Basis

<b>Example 3</b>					
Fresh Green Forage	375	0.7	Divide	12%	<b>5.9</b>
Concentrate	625	1.2	Divide	90%	1.3
	1000	1.89			<b>7.2</b>

Table 9 – Fresh Green Forage Effect of 2% increase in Dry Matter

Example 3 in Figure 8 indicates that consumption on an "As Fed" Basis is nearly doubled when the moisture content is increased by a further 10% to achieve the correct daily "Dry Matter" intake per bird. If that Green feed is in fact 12% - Table 9 - and not 10% "Dry Matter", the amount to be consumed reduces from 7.1kgs "As Fed" to 5.9kgs "As Fed".

This illustrates the importance of knowing the moisture content of the ingredients and ensuring correct "Dry Matter Intake" per day if the desired levels of health, performance

and carcass quality are to be achieved. The greater the volume of "wet feed", the greater the difficulty in achieving the correct "daily intake" of all feeds. As can be seen to total daily intake with a 10% dry matter ingredient is 8.4kgs/day....it is questionable if Ostrich can in fact consume that volume. Considering the low daily feed consumption of Ostrich, working with "wet feeds" is extremely risky.

The only change when feeding "Wet" or "Dry" is the MOISTURE content (Figure 3) of the forage ingredient. The "Dry Matter" intake MUST remain the same. The greater the MOISTURE content, the more difficult it becomes to achieve optimum balanced intake. The savings incurred when feeding wet feeds must be evaluated against the increased risks lost production from imbalances in the total ration caused by miscalculations in 'Dry Matter' intake or birds inability to consume adequate "daily intake", with the resultant Loss of Production and carcass inconsistencies.

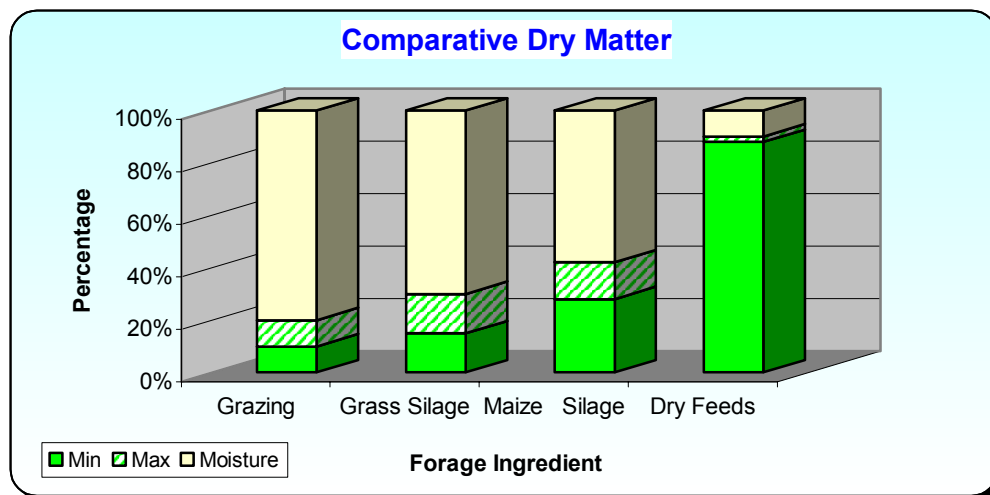


Figure 3 – Comparative Dry Matter Content of Different Feed Ingredients

## FEED MANAGEMENT

When making statements regarding performance, there is always one statement we make-- "Subject to Good Feed Management". Whether you have only a few birds or many, many thousands, the principles of good feed management remain the same. Management methods will differ according to scale and local climatic conditions.

The previous discussions have indicated the precision that is required to maximise the production potential of Ostrich. This discussion will cover the critical issues that are required to ensure maximum feed intake and efficiency of the feed.

Feed Management falls into a number of sub-categories:

- Know what you are feeding
- Mix the Feed Accurately
- Weigh Everything Correctly
- Feed Management
- Water Management
- Stockmanship
- No Supplementation

## **1. Know what you are feeding**

If you are working with commercial feeds, learn what to look for to ensure that the rations have production potential. The feed label will supply basic nutrient levels and the ingredients. Learn how to identify from the feed label if the rations are put together with production potential in mind or whether "least cost" rations were formulated. Ostriches cannot tolerate changes in ingredients between batches of feed and this practice generally results in the birds "going off feed" with resultant loss of production. If "least cost" formulations are used, the rations will also fall short for providing production characteristics and will generally suffer feed ingredient changes from batch to batch.

If you are mixing your rations on farm, be sure that you have the correct ingredients, the vitamin and mineral premix is designed for Ostrich, and the rations provided by the premix supplier have been designed by someone who has researched Ostrich and has knowledge of their requirements. When selecting a premix it is important to understand the relationship on inclusion levels in the premix and the effect on the nutrient levels in the finished rations. (See Part 1 on how to calculate this).

## **2. Mixing Accuracy**

Accuracy of mixing is essential. When mixing one's own feed, it is essential that the rations you use have been developed by a knowledgeable person with proven ability on Ostrich and that you follow the formulations exactly. The formulations should be designed to match a specific vitamin, mineral and amino acid supplement. It is very dangerous to substitute one company's premix with a formulation done by another company or to use a premix designed for other species. If using a local mill to mix for you - ensure that they use the ingredients specified and the amounts requested. To the mill, a minor alteration or substitution to the formula may seem insignificant, but to the birds it will have a negative impact on their performance.

Ensure that the ingredients used are of the highest quality. The forage, preferably Lucerne/Alfalfa, will need to be analysed for each batch. If there is a variation of more than 1% from the previous formulation, it may be necessary to adjust the formulations to allow for this depending on other factors in the formula. If the formulation calls for 47% Soymeal, ensure that it is just that and not 44%. If only 44% is available - it will be necessary to reformulate.

When mixing, everything must be WEIGHED exactly and mixed thoroughly. Ostriches cannot tolerate mixing errors.

The particle sizes must be the same. For example if the mix is basically ground but contains lucerne pellets and/or whole maize/corn, it is very likely that some birds will pick out the corn or the pellets in preference to the other ingredients or visa versa. Imbalances result in immediate loss of performance in Ostrich.

## **3. Weighing**

Determine how much should be fed of a particular ration and whether the ration should be LIMIT FED or AD LIB (free choice).

LIMIT FED is a controlled, specific quantity per bird per day. The quantity fed at each feeding will depend on the number of times the birds are fed per day. It is ESSENTIAL that the birds are fed exactly the amount specified. Too much or too little will end up with either fat birds or thin birds and loss of production in breeder birds. Remember to allow for any potential loss from such factors as wind or wild birds. Watch the condition of the birds.

If using a feed container to measure feed, weigh each container every time. Practical examples I have personally experienced--My feed container when feeding a pelleted feed had a variation of 15% - 20% between batches of feed. 15% is very significant in terms of performance. The reason for this is that the density can vary from batch to batch, and sometimes within a batch. The dangers and errors that can occur when feeding by volume cannot be over emphasised.

If feeding from bags - have scales to ensure that each bag is the weight it should be. Speaking from personal experience again - since changing to ground feed the same size bag can hold between 30kgs and 40kgs - depending on the ration - that is a variance of 25%!!!! If feeding direct from bulk supplies - put in place a system to ensure the correct weights are used...the technology is available - use it.

AD LIB feeding allows the birds to eat as much as they like as the birds are growing and increasing their intake daily as they grow. To feed AD LIB efficiently is an art and requires careful monitoring.

The approximate daily intake should be known for the given age of the birds. Feed should be put out at least twice a day and better 3 times a day. If the correct amount is put out, the troughs should be almost empty at the next feed time. If they are empty - increase the amount put out, if there is food left cut back a little. NEVER put fresh food on top of the old. Move the older food to one end of the trough and clean troughs EVERY morning.

Weigh any food taken away and monitor closely the total daily consumption. If the birds slow down eating, this is the first sign of impending problems - it could be an indication of a faulty batch of feed or maybe reduced water intake for some reason. I have heard a number of examples when feed mills have, when pressed by their customers, admitted to serious errors. The losses to producers as a result of these errors have been significant.

Food will deteriorate if exposed to the sun/air and becomes less palatable very quickly. Ostrich are very sensitive to these changes and reduced feed intake will result. Take care that the food does not get wet.

Birds eat a significant amount just after dawn and just before dusk - especially in hot climates. Ensure that there is adequate feed available at these times. Do not shut up the baby chicks for the night without food and water.

There will always be some birds that will consume at a faster rate than others and one is at all times working to averages. The secret is to develop systems that will minimise this impact.



## 4. General Management

### Feeding Times

Adult birds and growers over 3 months of age should be fed at least twice per day. Young chicks require more frequent feeding times. See special section at the end that covers 'Baby Chick Feeding Management' in greater detail.

Notice the speed of deterioration of the feed colour, if it is rapid as a result of exposure to the sun, implement more frequent feeding times or take measures to protect the feed from the sun. Ostriches are very sensitive to aroma and colour, when this deteriorates their feed intake will be reduced.

### Old Feed

When there is food left in the troughs, do NOT put new feed on top as the birds will reduce their intake of the feed. Rather put it on one side or in a separate trough (depending on the systems you have). Clean out completely at least once per day and weigh the feed taken back.

### Trough Space

Ensure that there is adequate trough space to enable all birds to eat at the same time. This enables the weaker birds to access the trough while the feed is fresh and encourages more equal intake of feed.

### Trough Protection

Feed troughs must be designed in such a manner that they are protected from the wind and rain. Conditions vary from region to region, what works well in certain climatic conditions will not work at all in others.

### Clean Troughs Daily

Unused feed should be removed at least once per day and weighed. If there is food left over on a regular basis, it may be that too much is being put out....if this is occasional, look for a reason. Some causes of birds not cleaning up feed are:

- **New Batch of Feed – Ingredients** - If it is a new batch of feed, check the feed. There may have been a change of ingredient or one ingredient may be of poor quality or have a poor aroma for the birds.
- **New Batch of Feed – Type** - has there been a change in particle size or system of manufacture (ie. pellet sizes have altered, pellet harder than before, meal when before it was ground etc.)
- **Water** - Check that there are no problems with the water supply...the birds may have reduced water intake for some reason. In cold weather birds will reduce water intake if the water is too cold. In extreme heat birds will reduce water intake if the water is not sufficiently cool.
- **Exposure** – If it has been particularly hot, wet or windy, this may have resulted in the feed deteriorating faster than the norm, or the birds may have been affected by the change in weather.
- **Stress** – There are a number of stress factors that can result in the birds going 'off feed'. Examples: Thunder Storm, Hot Air Balloon, Road Works close by, Unusual Activity...such as tractor work, earthmoving, building construction, or the harvesting of some crop close by.

- **Health** – Check that the birds are not becoming ill. With young growers there is a risk of Clostridium taking hold...especially as a result of a Stress factor as discussed in the previous paragraph. With Breeders if one pen has not cleaned up, that one of the breeders has not developed egg impaction, become injured etc.

### **Routine**

Ensure the feeding times are exactly the same time every day. All animals thrive on routine and become stressed when feeding times are altered.

### **Severe Cold Weather Change**

If a severe cold weather storm is forecast, it is prudent to increase the complete feed a day or two before hand and during the course of the severe weather. DO NOT simply add a little extra maize or Lucerne...this will have the reverse effect by throwing rations out of balance.

### **5. Water**

There must be a clean supply of fresh water freely available at ALL times for ALL ages of birds. All water should be sampled regularly to ensure that there are no abnormal mineral levels or other contaminants. Observe the daily water consumption to learn the "norm".

Note if consumption decreases - particularly at times of a drop in temperature. Birds will slow down drinking if water is too cold. In cold climates, a proper water heater should be installed to keep water at 70-90 degrees F (21-32 degrees C) to maintain a steady consumption by the birds. Most common heaters only keep the water from freezing (around 40-45 degrees F; 4-7 degrees C) and that is too cold on wintry days causing the water consumption to fall by 50% or more. When water consumption drops, feed utilisation drops right with it. There are special heaters available that will keep the water temperature at much higher levels and the birds love it. This will allow water consumption in winter to be nearly the same as summer water consumption and allows good growth and weight gains to continue through the winter months if the feed formula is correct.

Ensure that baby chicks have water available to them at ALL times.

### **6. Stockmanship**

There are many aspects of livestock production that come under the heading of 'Stockmanship'...a good stockman is 'in tune' with the animals under his care. A good stockman has a 'sixth' sense on the animal's needs that go beyond any textbook.

### **Observations - Feeding**

The good Stockman will take a few moments at feeding time to understand the "norm". Then he/she is able to observe signs that are out of the "norm":

- a. Bird Condition
- b. There is sufficient trough space to allow all birds are able to eat at the same time.
- c. A bird not coming to feed
- d. A bird not eating properly
- e. Birds slower to eat than normal
- f. Signs of any injury
- g. Signs of illness

## **Observations - Water Intake**

The good Stockman will be alert to the daily water consumption to understand the "norm".

Note if consumption decreases - particularly at times of a drop in temperature. When water consumption drops, feed utilisation drops right with it. As mentioned above there are special heaters available that will keep the water temperature at much higher levels and the birds love it. This will allow water consumption in winter to be nearly the same as summer water consumption and allows good growth and weight gains to continue through the winter months if the feed formula is correct.

## **Observations - General**

The good Stockman will be always alert to general behaviour, droppings etc. to establish the "norm" and be aware of any factors that fall outside the "norm".

Droppings – walking through the pens and check dropping consistency  
Activity - taking note of any change in the norm.

- a. Birds not showing the normal curiosity
- b. Birds sitting more than usual
- c. Birds that are standing or sitting alone
- d. Other birds being aggressive to one particular bird
- e. General stance
- f. Not sitting following feeding
- g. Birds acting agitated or frantic

## **7. Supplementation**

It must be remembered that EVERY nutrient ingested by an animal during the course of the day contributes to the TOTAL DAILY NUTRIENT INTAKE of that animal. Many times we are asked why "so and so" who is feeding the same rations is achieving different results. It usually takes very few questions to establish there is something different in each case. Sometimes it will be as simple as one is weighing the feed accurately and the other is not. More often there is something else being fed or added to the water.

There are many products on sale that producers are encouraged to purchase with a promise of enhanced performance...or reduction in chick mortality. There is NO substitution for a well-designed ration...and the moment a producer adds anything he puts his birds at risk. For example, the ration will have been carefully formulated to ensure there were no mineral interferences...adding any extraneous products immediately throws this careful balance out. If enhanced performance is achieved when adding a supplement, then the rations need to be changed as they must be falling short. Do NOT take the word of the salesman, but rather take the time to learn what is in the rations being fed and if they are likely to provide adequate performance.

If the birds have access to grazing, this must be taken into consideration when compiling the rations. The feed being fed must be designed to allow for the consumption of the grazed material as discussed earlier.

There is a practice in some areas of providing the breeders with vitamin injections at the beginning of the season. If enhanced benefit is gained from this, then the rations need to be examined as they must be falling short. It is essential to provide the breeders with rations during the "off season" that replenish the depleted nutrients. If they are short of vitamins, they are generally short of other essential nutrients at the same time.

## **8. Summary**

Feed Management is an art. Every operation has to work at it to eliminate errors and oversight. The "skill" to feeding management is to put EQUAL emphasis on all the details. Doing only one of them right and ten others wrong will result in failure. It is far better to do ALL the details 80% right than to do some of them 100% right and the rest 0% right. A successful operation will be paying close attention to ALL the Feed Management details as best one can--and will have in place organized checkpoints to verify that all details are covered so some are not forgotten. It is the forgotten details that will "sneak up and bite".

Remember at all times that the Ostrich is very sensitive to what may seem like minor errors or omissions. At all times think accuracy and precision.

**Baby Chick Feeding Management**  
**From: Blue Mountain Ostrich Diagnostic Centre**  
**Author: Daryl Holle, Blue Mountain Feeds Inc.**

Incorrect Chick Feeding Management can lead to a Fading Chick Syndrome situation in Ostrich chicks when combined with other FCS causes. The task at hand to accomplish Good Chick Feeding Management is to get chicks to eat a proper amount of good feed daily to support body functions and needed growth. If the Chick Feeding Management is poor, the chicks will not eat enough feed, which causes the conversion from yolk sac to external feed diet to miserably fail. This conversion failure allows other FCS causes to intermingle and gain control.

Some examples of Chick Feeding Management are:

### **1. Feeding Frequency:**

It is most important to always have "fresh" feed in front of the chicks. Chicks need to be encouraged to eat feed as much as possible. Remember the fact that their feed consumption needs to be on a constant increase each day as the dependency on the yolk sac is lessened each day. This conversion process (yolk to feed) takes extra effort on the part of the farm management personnel to ensure everything is done in a way to get chicks to eat a "balanced" ration as much as possible.

Increasing the Feeding Frequency (number of feedings per day) will increase the total feed intake per chick per day. The best results are obtained from feeding 6 times per day, but under no circumstances should the chicks be fed less than 3 times per day.

## **2. Proper Nutritional Diet - Without Manufacturing Errors:**

It is crucial that the total feed diet fed to the chicks is a "balanced" diet that has been proven to properly sustain the body functions and support the proper chick growth needed. If the feed is a manufactured feed from a local mill, always check the feed between batches purchased to ensure the quality, appearance, and odors are the same as the previous batch. Always be suspect of mill substitutions of feed ingredients as chicks can smell this and will back off feed consumption if severe enough. Question the feed quality and consistency CONSTANTLY as the lives of your chicks depend on it.

If a farm is grinding/mixing its own feed formulas, the same things apply. Make sure the grinding/mixing is being done correctly and accurately--and that all ingredients are weighed exactly according to the given feed formula. Also make sure the farm mixed formula is one that has been PROVEN to sustain all the needed body functions and encourage good chick growth.

## **3. Never Add Fresh Feed on Top of Old Feed:**

Feed consumption by chicks will slowly decline if old feed is left in the feeders and fresh feed poured on top of it. Chicks can SMELL and older feed from the feeding before will taint the odor of the new fresh feed and chicks do not tolerate that well.

Always make it a practice to remove feed and clean the feeders on each feeding. Discard the old feed or feed it to other older birds. Never leave old feed under new fresh feed.

## **4. Feeding Amounts:**

Feed often (frequency) and feed small amounts and watch the feed consumption carefully. Feed an amount that is just a little more than they normally would eat in a certain time span to encourage increased feed consumption. Feed at regular and timed intervals as chicks love the strict time schedule and will be looking for it. Get to know your chicks' eating habits and think of ways to encourage them farther without altering their total diet.

## **5. Weigh the Fresh Feed IN and Weigh Old Feed Taken OUT:**

It is crucial to know the amount of feed actually consumed by a group of chicks every day. This consumption should be on a gradual increase each day. The net amount of feed (fresh feed weight minus old feed removed weight) is a very strong clue to the chicks progress.

When a decrease in feed consumption appears, it should be immediately brought to attention and carefully analyzed. If on the second day, another feed decrease occurs, a solution must be found and steps taken to remedy the problem. If no action is taken, by the 3rd or 4th day of steady decrease in feed consumption it may be too late to get control of the situation. It doesn't take very long at all for baby chicks to become nutritionally deficient, allowing other FCS causes to set in.

Weighing the fresh feed fed and subtracting the weight of the old feed removed is an important part of Good Chick Feeding Management. It allows the operator to always be "in tune" with the chicks and be far ahead of potential chick health disasters.

## **6. Feed and Water Deprivation:**

Do not deprive (remove) feed or water from chicks at any time. Make sure there are adequate feeders and waterers so all chicks can eat and drink comfortably in their favorite locations. NEVER limit water intake. Water is an important nutrient needed for proper digestion of feed. Water is also crucial to proper cell growth and many other body functions.

## **7. Keep Feed Out of the Sunshine:**

The effects of the sun degrade the feed value and certain nutrients in the feed. Feed left in the sun for long periods of time will cause the chicks to decrease feed consumption and degrade the potency of the feed itself. Feed should always be under shade of the direct sunlight.

## **8. Water Too Hot or Too Cold:**

Chicks do not like HOT water in the summertime. Chicks do not like COLD water in the wintertime. Baby Ostrich chicks, like human babies, have difficulty maintaining proper body temperature--it is a constant struggle for them. When they are hot, they want to drink cool water to help with their high body temperature. When they are cold, they want to drink warm water. Water temperature is an aid to help chicks control their body temperature.

In the hot summertime, if chicks are drinking TOO MUCH water, it is a strong signal that they are getting too hot and need more shade in their pen. The answer is not to take the water away, the correct answer is to provide MORE SHADE and air movement to the chicks.

## **9. Do Not Feed Treats or Extra Things:**

Never feed the chicks extra treats like fruit, vegetables, and so on. This upsets the "balanced diet" that you have worked so hard to provide. If the chicks go off feed, there is a reason WHY. Find the reason and fix it rather than feeding them NEW things just to see if they eat it.

## **10. Alfalfa (Lucerne) and Grass Grazing:**

In some areas it is a common practice to move chick pens through fields of Alfalfa (lucerne) allowing them to graze new patches every day. While this method sometimes works, it more than often fails to raise quality chicks. The reasons for this are very basic:

First, what usually happens is it becomes the farm operators "driven" goal to get new fresh alfalfa (Lucerne) to the chicks everyday by moving the chick pens. It quickly becomes a matter of managing the alfalfa input to the chicks rather than concentrating on managing the FEED input to the chicks. Needless to say, the more alfalfa the chicks eat, the less "balanced" feed they are going to eat so everything starts going backwards from the original goals of the feeding program.

Secondly, as the chick pens are moved across the alfalfa field, the alfalfa itself gets more MATURE. As soon as the first bloom appears on the alfalfa plant, the protein level of the plant starts to go DOWN. The fiber level starts to INCREASE. After first bloom, the alfalfa plant goes through many nutrient changes. These changes cause tremendous variables in the chicks' total nutrient diet. This is exactly the danger we are trying to prevent when raising healthy chicks.

Thirdly, chicks overgrazing on alfalfa pasture will sometimes cause a change in gut pH factors within the chick. Chicks love grazing on alfalfa, but that does not always mean it is good for them. Human kids love Ice Cream, but enough is enough.

It is most difficult to properly manage an alfalfa grazing program. It can work fine one year, but the next year turn into disaster. It usually results in slow growing chicks with poor muscle development--even in the good year.

Keep in mind that the purpose of feeding chicks is to keep them healthy and growing well. Doing that year after year requires excellent Chick Feeding Management. Alfalfa grazing usually allows too much emphasis on "grazing" and not enough emphasis on Good Chick Feeding Management.

### **11. Adding Minerals and Vitamins to Drinking Water:**

On some farms, this is common practice but one needs to take great care in doing this.

First, it should be carefully analyzed WHY it is necessary to add minerals or vitamins to the drinking water. The feed should be formulated to provide the necessary nutrients to the chicks. If it is not, then the feed formula should be carefully analyzed to find out why not.

In some cases, adding minerals and vitamins to the chicks' drinking water can interfere with certain nutrients in the feed causing a negative result. Care must be taken to maintain a "balanced diet" of all nutrients and make sure every chick is getting same.

Lastly, adding minerals and vitamins to the drinking water sometimes turns the water a different color or gives it a different odor. This causes the chicks to drink LESS water, which is backwards of what is needed. In some cases, chicks will totally quit drinking water because of the color or odor.

Adding minerals and vitamins to drinking water usually carries a high risk. If something does not go quite right, the chicks will go into a stress mode very quickly and "open the door" for other FCS causes to enter.