

## Bodyweight Control for Heavy Strain Breeders – 2014 Update

In 1992, Nicholas published its first recommendation for weight of replacement hens at lighting - 22 lbs (10 kgs). Since then, the bird has continued to improve in growth rate so the current recommended weight is 28 lbs (12.7 kgs), an increase of over 27%. This trend will continue as the geneticists improve the commercial performance.

While the growth rate, FCR and breast meat yield has improved, the potential for good egg production is also increasing. However, as the female line becomes heavier, the management of the hen during the rearing stages becomes more important in determining the peak egg production and the persistency of lay. Management of the bird's development is essential to ensure maximized performance from the hens.

### Follow Weight Profile

In order to achieve optimum reproductive performance it is important to follow the weight profile outlined in Table 1. A dynamic system of monitoring and reacting to body weight is crucial to achieve the best results.



### Provide Appropriate Diets from Day One

During the first 6 weeks the fundamental development of the skeleton, immune system and cardiovascular system takes place. It is important to get the hens off to a good start by following the weight profile and by providing diets that have the correct balance of nutrients at the right time. This does not mean feeding commercial diets. These high-density starter diets can make it difficult to hold birds to target weights.

**Table 1. Nicholas 700 Parent Stock Female Weight Profile**

Age (weeks)	Weight		Weekly Consumption		Cumulative Consumption	
	(lbs)	(kgs)	(lbs)	(kgs)	(lbs)	(kgs)
1	0.29	0.13	0.3	0.12	0.3	0.12
2	0.61	0.28	0.5	0.22	0.7	0.34
3	1.11	0.51	0.7	0.31	1.4	0.64
4	1.76	0.80	0.9	0.39	2.3	1.04
5	2.57	1.17	1.3	0.57	3.5	1.60
6	3.50	1.59	1.6	0.74	5.2	2.35
7	4.49	2.04	2.1	0.96	7.3	3.31
8	5.52	2.50	2.6	1.16	9.8	4.47
9	6.59	2.99	3.1	1.40	12.9	5.86
10	7.69	3.49	3.6	1.62	16.5	7.48
11	8.83	4.00	3.9	1.79	20.4	9.27
12	9.99	4.53	4.3	1.93	24.7	11.20
13	11.18	5.07	4.6	2.09	29.3	13.29
14	12.36	5.61	4.9	2.23	34.2	15.51
15	13.53	6.14	5.1	2.30	39.3	17.82
16	14.66	6.65	5.3	2.40	44.6	20.22
17	15.74	7.14	5.4	2.44	50.0	22.66
18	16.73	7.59	5.5	2.49	55.4	25.15
19	17.68	8.02	5.5	2.49	60.9	27.64
20	18.62	8.45	5.5	2.49	66.4	30.13
21	19.56	8.87	5.5	2.49	71.9	32.61
22	20.50	9.30	5.5	2.49	77.4	35.10
23	21.43	9.72	5.5	2.49	82.9	37.59
24	22.37	10.15	5.5	2.49	88.4	40.08
25	23.31	10.57	5.5	2.49	93.8	42.57
26	24.25	11.00	5.5	2.49	99.3	45.05
27	25.18	11.42	5.5	2.49	104.8	47.54
28	26.12	11.85	5.5	2.49	110.3	50.03
29	27.06	12.27	5.5	2.49	115.8	52.52
30	28.00	12.70	5.5	2.49	121.3	55.01

### Weigh Birds Weekly From 3 Weeks

Start a weekly weighing program when the birds are 3 weeks of age. It is important to monitor the weekly weights against the target to ensure the birds are on track to hit the 6 week weight. By the time the birds leave the brooder house at 6 weeks they should weigh 3.50 lbs (1.59 kgs).

## Key Weights are at 6, 16 and 22 Weeks

From 6 to 22 weeks of age the birds continue to develop their skeletal structure as well as feather coverage and musculature. Achieving the target weights at 6, 16 and 22 weeks of age are key to maintaining the hen on target, see Figure 1. Our research has shown that if these three points are achieved in a smooth, relatively unbroken line the hen will be set to come in on target and with the proper body composition.

Do not allow birds to get over weight when moved from the brooder house. Consider adjusting the feeding program if the hens are more than 10% away from the target weight.

## Moving Back to the Target, Before 16 Weeks

If birds are off of the weight target early in life, use diets and patience to bring the birds back to the correct line. Move heavy flocks onto the next ration sooner and hold light flocks on the higher protein ration longer. If weight gain stalls due to high ambient temperatures, move birds back to a higher protein ration to maintain desired growth. Rapid weight adjustments should not be attempted, whether the birds are over or under weight.

## Drawing a New Target at 16 Weeks

At 16 weeks if the birds are heavier than the target draw a new target that runs parallel to the original line, see Figure 2. If the hen is in a positive growth status at lighting, even if the flock is slightly overweight, the response of the bird to the light stimulus allows good production. Flocks *must not* be forced back to the target line by more severe nutritional controls.

## Steady Growth to Light Stimulation

From 22 weeks to lighting the birds should gain 0.94 Lbs (0.42 kgs) per week. This is a key period in the development of the hen. The objective is to keep the bird growing at a

Figure 1. Target Hen Weight Curve

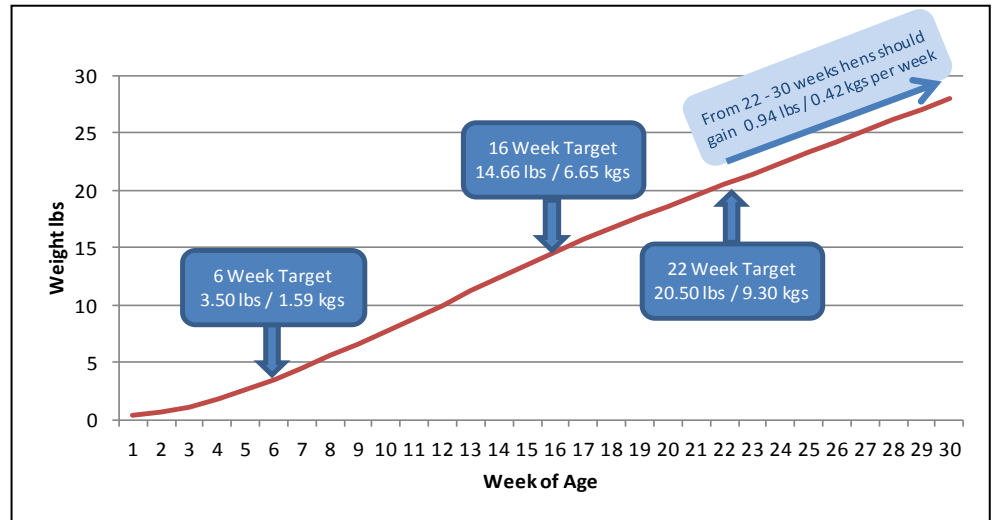
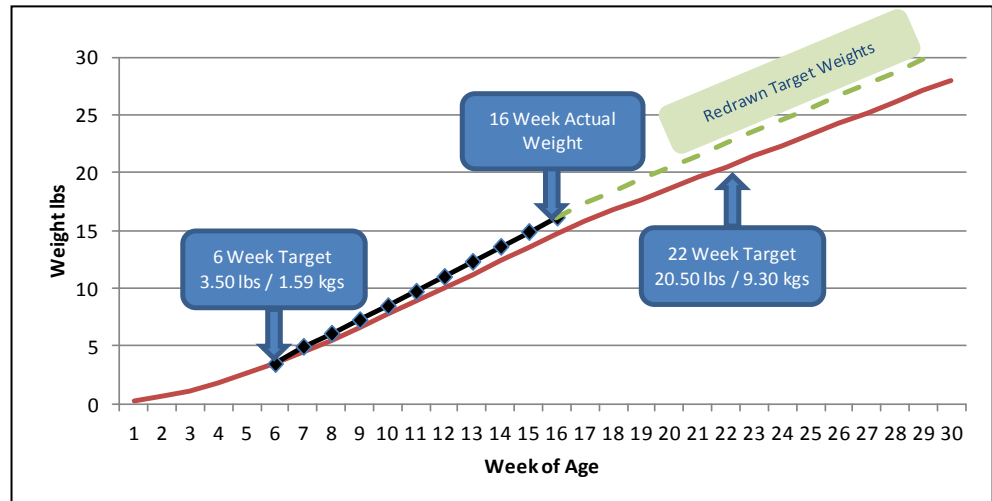


Figure 1. Redrawing Target Hen Weights



steady rate so when the light stimulus is given at 29/30 weeks the metabolism of the bird is able to respond immediately and meet the rapid changes in the reproductive system.

From lighting to first egg flocks should increase in weight by 2-3 lbs (0.8-1.2kg). Flocks that plateau in weight prior to light stimulation do not respond as positively. When weight gain is insufficient, peak egg production is lower and spread over a longer period.

## Flock Uniformity

Uniformity should continuously improve over the life of the flock. If the flock is becoming less uniform, factors such as bird health, feed access, feed quality and water availability should be checked. At point of lay, flock uniformity should be greater than 90% or have a CV of less than 10%.

## Feeding the Males

Rearing males in the brooder barns with the hens becomes more difficult when the hens are managed according to this strategy as the requirement of the male for protein at an early stage is much higher.

- The males must follow a feeding schedule nutritionally matched to their needs, and must not be compromised by following the hen regime.
- Manage the male weight in the same way as the hens with regular monitoring against target, see table 2, and adjusting the feeding schedule when the birds begin to move away from the target line.

- Following the final selection, feed males diets which enable them to make positive weekly weight gains without becoming overly fat, whether they are fed ad-lib or controlled amounts.
- During the productive period males should receive the same vitamin and trace mineral supplementation as the laying hen.

**Table 2. Nicholas Parent Stock Male Weight Profile**

Age (weeks)	Weight		Weekly Consumption		Cumulative Consumption	
	(lbs)	(kgs)	(lbs)	(kgs)	(lbs)	(kgs)
1	0.30	0.13	0.3	0.13	0.3	0.13
2	0.93	0.42	0.7	0.30	1.0	0.44
3	1.69	0.77	1.1	0.48	2.0	0.91
4	2.70	1.22	1.5	0.70	3.6	1.61
5	3.91	1.77	2.1	0.96	5.7	2.57
6	5.38	2.44	2.7	1.22	8.4	3.79
7	7.10	3.22	3.4	1.52	11.7	5.31
8	9.03	4.10	4.1	1.86	15.8	7.17
9	11.34	5.14	4.7	2.13	20.5	9.31
10	13.81	6.26	5.4	2.44	25.9	11.74
11	16.46	7.47	5.8	2.63	31.7	14.38
12	19.26	8.74	6.4	2.90	38.1	17.28
13	22.16	10.05	6.9	3.13	45.0	20.41
14	25.15	11.41	7.6	3.44	52.6	23.85
15	28.24	12.81	8.1	3.66	60.7	27.51
16	31.34	14.22	8.6	3.92	69.3	31.42
17	34.30	15.56	9.2	4.17	78.5	35.60
18	36.80	16.69	9.6	4.35	88.1	39.95
19	38.63	17.52	9.8	4.45	97.9	44.40
20	40.01	18.15	10.0	4.54	107.9	48.93
21	41.40	18.78	10.1	4.57	118.0	53.51
22	42.77	19.40	10.3	4.66	128.2	58.17
23	44.17	20.04	10.5	4.75	138.7	62.91
24	45.53	20.65	10.6	4.81	149.3	67.72
25	46.91	21.28	10.8	4.90	160.1	72.62
26	48.29	21.90	11.0	4.99	171.1	77.61
27	49.67	22.53	11.2	5.06	182.3	82.67
28	51.04	23.15	11.3	5.11	193.5	87.78
29	52.43	23.78	11.4	5.17	204.9	92.95
30	53.80	24.40	11.6	5.27	216.5	98.22

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