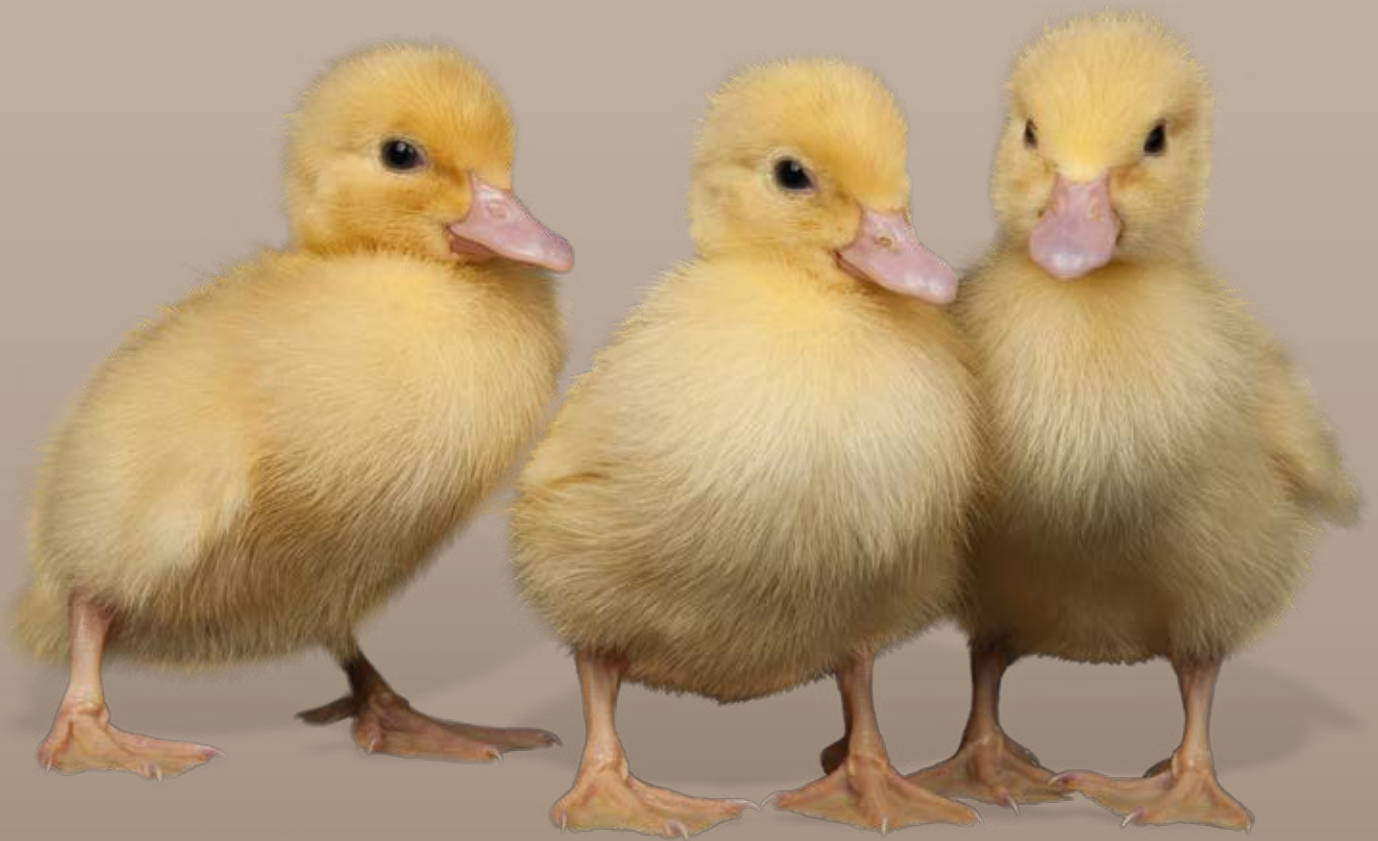


BREEDING GUIDE

ROASTING CANEDINS



GRIMAUD FRÈRES
— weezyou —

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I. HEALTH ASPECTS



GRIMAUD FRÈRES
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I. HEALTH ASPECTS

HEALTH CARE:

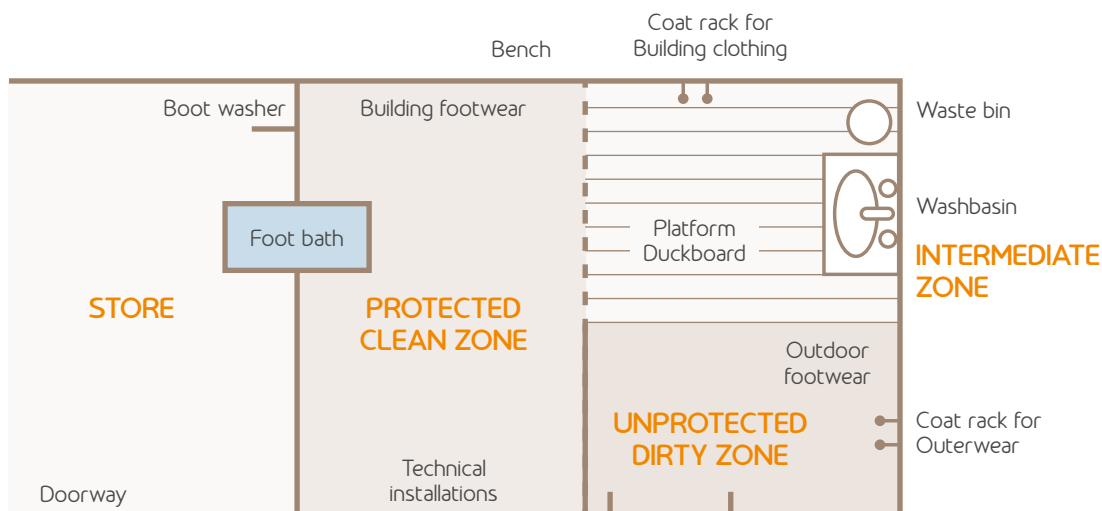
- Its purpose is to safeguard against contamination from the outside by preventing potential vectors from entering the building.

EXTERNAL PROTECTION:

- > Fenced site.
- > Clean and disinfected floor surrounding the building.
- > Bird and rodent proof building.
- > No poultry on the farm.
- > Feed and rendering trucks must not enter the protected area.
- > Concrete area for washing.

PERSONNEL:

- Humans are the most important vector of contaminating agents. A well-designed airlock used for every situation must meet the following characteristics



- Its use should allow potentially contaminated outdoor clothing and footwear to be left in a dirty area and clean clothing to be put on after washing hands. It must be kept clean and disinfected regularly

ACTIVE PROTECTION:

- > Care will be provided from the youngest to the oldest birds and, in case of a pathology, sick birds will be treated last.
- > Active control will be implemented against rodents and insects.
- > Dead birds must be removed without passing through clean areas and stored in a sealed, refrigerated enclosure.
- > Silos, feeders, drinkers and water circuits must be decontaminated regularly.

CLEANING - DISINFECTION - BUILDING DEPOPULATION:

- All these operations aim to ensure the building has the hygienic conditions necessary to receive a new batch.
- All these operations must be carried out perfectly and in logical order otherwise the efficiency of the whole system will be nullified.
- Special care must be taken when washing: no disinfectant is effective in the presence of organic matter.

ORDER OF OPERATIONS:

- > Spray insecticide immediately upon manure removal.
- > Disassemble all removable equipment, then clean and disinfect.
- > Remove all organic matter from the building.
- > Clean the building and its equipment, in particular the watering system.
- > Disinfect by spraying walls and floor.
 - >>> Put the sanitary barriers in place (airlocks, clothes, etc.)
- The building depopulation begins: its duration must allow the building to dry out completely.
- During this period, the opportunity to maintain the surroundings, clean and disinfect the silos, and apply rodenticide bait is taken.

BEFORE STARTING A NEW BATCH:

- > Bring in clean and disinfected equipment, bedding if necessary.
- > Carry out a gas disinfection.

IMPORTANT POINTS

- > Do not forget ventilation ducts, airlocks, stores and doorways, all areas with high contamination.
- > The disinfectant products used must be registered and used under specific conditions of dose, temperature and quantities of solution (1 litre/4 m²)
- > Washing must be carried out with bacteriologically potable water.



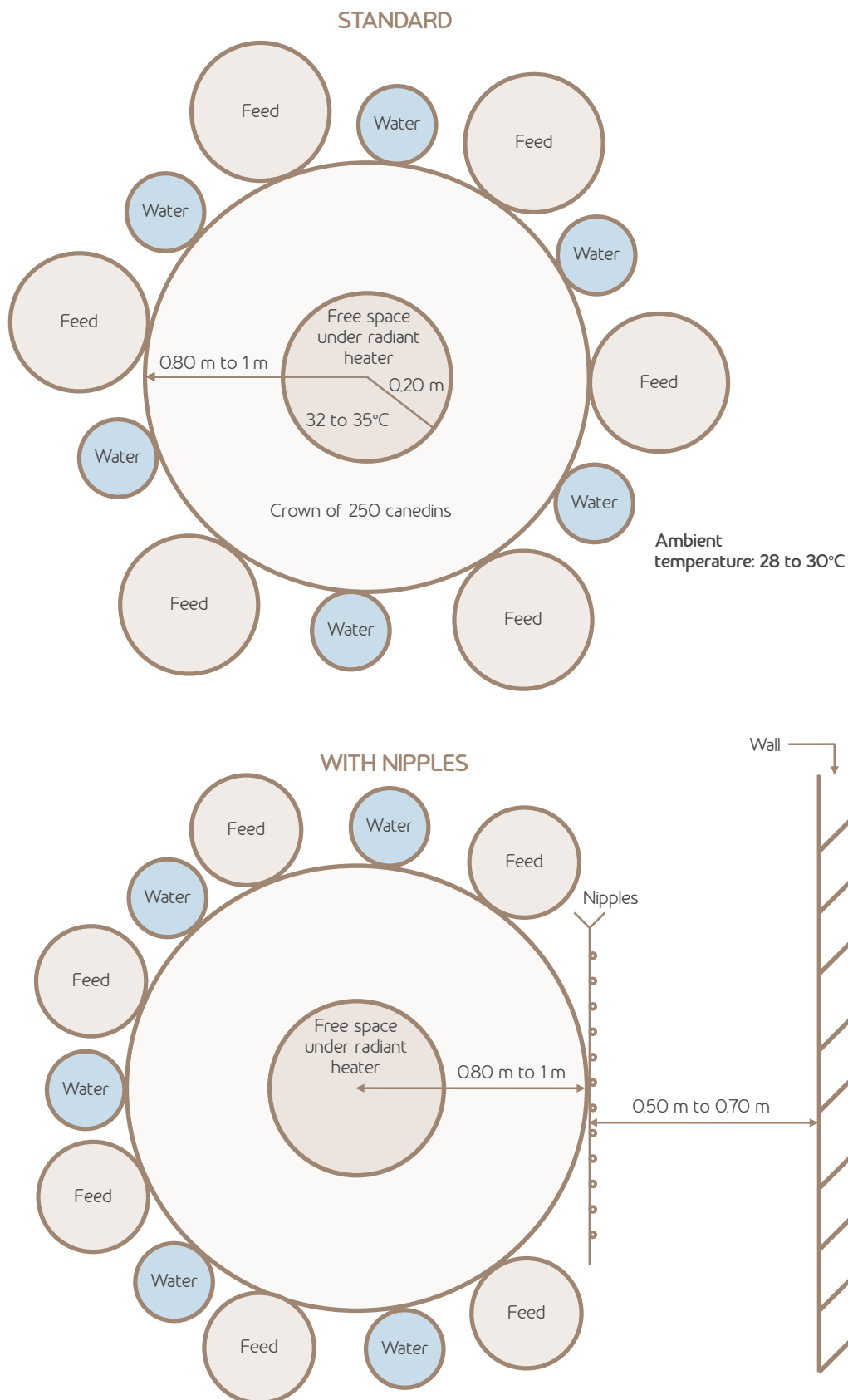
II. BUILDING AND EQUIPMENT



GRIMAUD FRÈRES
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II. BUILDING AND EQUIPMENT

2.1. DIAGRAM OF A STARTER FACILITY



2.2. DENSITIES

DENSITIES TO APPLY:

We recommend not exceeding the following densities:

HEAVY STRAINS:

- > 10 to 11 males per m²
- > 20 to 21 females per m²

i.e. 15 to 16 animals per m²: 50% male, 50% female.

MEDIUM STRAINS:

- > 11 to 12 males per m²
- > 21 to 22 females per m²

i.e. 16 to 17 animals per m²: 50% male, 50% female.

In order to respect a balance between males and females, the surface area should be distributed taking into account the ratio of males to females at the MEP and reasoning in kg/m²/gender estimated at the departure of the females

These standards apply under perfect conditions of building equipment and operation.

The males must be loosened after the females have left.

The objective is to produce about 58 to 60 kg live weight per m² (males + females).

2.3. TEMPERATURE - VENTILATION

1 radiant heater for 300 to 400 ducklings

AGE IN DAYS	TEMPERATURES ⁽¹⁾	
	UNDER RADIANT HEATERS	AMBIENT
1 to 3	40 - 45°C	30°C
4 to 7	38 - 42°C	29°C
7 to 14	36 - 38°C	27°C
14 to 21	35 - 37°C	25°C
21 to 28	30 - 32°C	22°C
28 and above	according to season ⁽²⁾	18 - 22°C

(1) Temperature to be modulated according to animal behaviour.

(2) Possibility of raising the radiant heaters and/or phasing out some of them.

- Ventilation must be static or dynamic and maintain a healthy environment (ammonia level < 10 ppm).
- Avoid draughts until adult plumage is reached.
- For dynamic ventilation, provide an extraction of 1 to 6 m³/hour/kg of live weight.

2.4. THE LIGHTING PROGRAMMES

AGE	INTENSITY	CONTINUOUS PROGRAMME (1)	SPLIT PROGRAMME (1)
1st week	60 to 80 lux	24 hours a day	24 hours a day
2nd and 3rd week.	30 lux	Gradual decrease from 24 hours to 16 hours a day	Start with a 2-hour shutdown and then add more 2-hour breaks to arrive at 6 sequences of 2 hours of light and 2 hours of darkness per day.
4th week to slaughter	10 lux	10 hours of dark 14 hours of light	

(1) For the lighting programme to be effective, the drop in intensity between the light and dark periods must be sufficiently great.

III.

BEAK TREATMENT (BT) AND CLAW TREATMENT (CT) AT THE HATCHERY



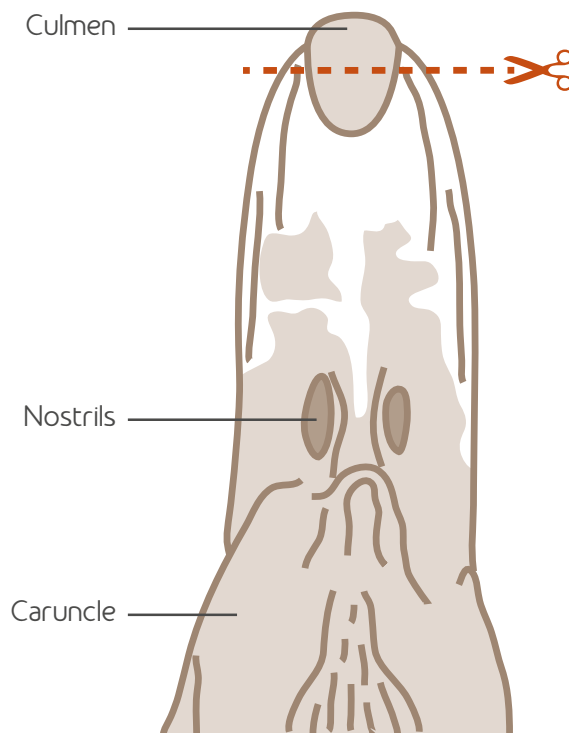
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III. BEAK TREATMENT (BT) AND CLAW TREATMENT (CT) AT THE HATCHERY

BEAK TREATMENT (BT)

Operation that limits the size of the upper mandible of the beak to avoid pecking and cannibalism.

This operation can be done using infrared at 1 day or scissors at 15-20 days (see diagram below).



CLAW TREATMENT (CT)

This treatment is identical to the beak treatment, it inhibits the cell growth of the claws.

The purpose of this operation is to prevent the birds from scratching when handled, particularly during removal.

- It can be done from the age of 10 days.
- Cut the claws one after the other for better precision and an even declawing. It is advisable to cut from underneath the palm to follow the implantation of the claw.



OUR RECOMMENDATIONS

When both treatments are used, the recommendations for a good start are as follows:

- > Increase the temperature by 1 to 2° in relation to normal
- > Cover at least 1/3 of the surface of the duckboard with paper
- > **The ducklings must be sprayed for the first few days at a rate of 1 litre/1,000 ducklings, to hydrate them with water at the building's room temperature.**
 - Upon arrival: 3 times before night with 2 hours spacing between the spraying
 - Second day: Morning, mid-morning, noon, mid-afternoon, evening
 - Third day: Morning, mid-morning, noon, mid-afternoon, evening
 - Fourth day: Morning, noon and evening
 - Fifth day: Morning and evening

IV. FEEDING - WATERING



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IV. FEEDING - WATERING

FEEDING:

- For starter period: 1 feeder for 50 to 60 ducklings.
Place papers with food sprinkled on them to make it easier to move around and stimulate consumption.
- From the 2nd week:
 - > Access to feeding lines.
 - > 3 cm/subject with circular feeders.
- From the 4th to the 8th week, mastery of ingested feed:
 - > Limiting access to the feeder
 - > Have the plates emptied once a day
 - > Ducks should always eat when standing with the feeders as high as possible. This limits waste and promotes feed assimilation.
- From the 9th week: adapt the diet according to the desired live weight objective.

WATERING:

- For starter period: 1 cup for 50 to 60 ducklings.
Spray the ducklings at a rate of 0.8 litres/1000 ducklings upon arrival, then every two hours on the first day, then 5 times the next day, and finally 3 times on the third day.
- Install adult watering equipment from the 1st day:
 - > Nipples: 1 for 5 ducklings.
 - or
 - > Round cups (Plasson type): 1 for 150 to 200 ducklings.
- Remove cup during the 2nd week.



MUSCOVY BROILER DUCK FEED CHARACTERISTICS:

	STARTER FEED 0 - 3 weeks		GROWTH FEED 4 - 7 weeks		FINISHING FEED 8 - 12 weeks	
	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
Granulation (Ø mm)	-	1.5	3.5	4	3.5	4
Metabolisable energy (Kcal/kg)	2850	2900	2900	3100	3000	3200
Crude protein %	19.00	22.00	17.00	19.00	15.00	18.00
Methionine %	0.45	-	0.40	-	0.30	-
Methionine + cystine %	0.85	-	0.65	-	0.60	-
Lysine %	0.95	-	0.85	-	0.75	-
Threonine %	0.75	-	0.60	-	0.50	-
Tryptophan %	0.23	-	0.16	-	0.16	-
Cellulosic materials %	-	4.00	-	5.00	-	6.00
Fats %	-	5.00	-	6.00	-	7.00
Calcium %	1.00	1.20	0.90	1.00	0.85	1.00
Digestible P %	0.45	-	0.40	-	0.35	-
Vitamins: A (IU/kg) (*) D (IU/kg) E (mg/kg)	15000 3000 20	- - -	10000 2000 20	- - -	10000 2000 20	- - -
Na % Cl %	0.15 0.15	0.18 0.22	0.15 0.15	0.18 0.22	0.15 0.15	0.18 0.22

(*) Regulations limited to 10 000 IU/kg in Europe

The metabolisable energy and amino acid values are based on the INRA tables - 'CHICK' section for starter and growth feeds, and 'ADULT COCKEREL' for breeding and laying feeds.

CONSTRAINTS IN THE USE OF RAW MATERIALS FOR COMMON DUCK BROILERS:

RAW MATERIALS (%)	FEED	STARTER FEED 0 - 3 weeks		GROWTH FEED 4 - 7 weeks		FINISHING FEED 8 - 12 weeks	
		MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
Corn		15%	40%	10%	40%	15%	30%
Wheat		15%	45%	20%	45%	30%	45%
Oats		-	0%	-	3%	-	5%
Barley		-	0%	-	5%	-	10%
Cassava		-	0%	-	3%	-	5%
Sorghum		-	5%	-	10%	-	15%
Bran and derivatives		-	5%	-	7%	-	10%
Distillery solubles (from corn)		-	0%	-	5%	-	5%
Added fats of which:			3%		3%		3%
Animal fats (*)	-		1%	-	2%	-	2%
Vegetable oils			2%		3%		3%
Molasses		-	0%	-	1%	-	15%
Soya meal		-	-	-	-	-	-
Soya beans		-	5%	-	10%	-	10%
Rape seed cake 00		-	2%	-	5%	-	7%
Sunflower cake		-	2%	-	5%	-	7%
Spring pea		-	5%	-	10%	-	15%
Field bean		-	2%	-	5%	-	7%
Alfalfa meal		-	0%	-	5%	-	7%
Animal meal (*)			5%		5%		5%
including:	-			-		-	
Whole fish meal			3%		2%		0%
Meat meal			4%		5%		7%

(*) if authorised by the legislation in force

V. PROPHYLAXIS PROGRAMME



GRIMAUD FRÈRES
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V. PROPHYLAXIS - INTERVENTIONS

The vaccination programme must follow veterinary prescription.
It is given below for information only.

- > 1 day:
 - Vaccination against parvovirus
 - Beak treatment (BT)
 - Claw treatment (CT)
- > 15-21 days:
 - Vaccination against parvovirus (booster)
 - Beak trimming if not treated within 1 day
 - Declawing

VI. GROWTH



GRIMAUD FRÈRES
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CANEDINS R41 BLACK - ATYPICAL GROWTH - CONSUMPTION:

MALES								
PER WEEK					TOTAL			
Week	ADG (g)	Feed (g/d/subject)	Instant FCR	Water (ml/d/subject)	Age (in days)	Live weight (g)	Total con- sumption (g/subject)	Total FCR
1st	20	22	1.12	100	7	186	154	0.83
2nd	33	50	1.52	200	14	414	501	1.21
3rd	48	87	1.81	320	21	751	1111	1.48
4th	68	141	2.07	440	28	1227	2098	1.71
5th	87	197	2.25	480	35	1838	3474	1.89
6th	86	197	2.30	540	42	2439	4854	1.99
7th	83	230	2.77	570	49	3019	6461	2.14
8th	75	242	3.21	600	56	3547	8158	2.30
9th	69	235	3.38	600	63	4033	9800	2.43
10th	61	211	3.48	600	70	4458	11279	2.53
11th	50	201	4.05	600	77	4805	12685	2.64
12th	42	191	4.54	600	84	5100	14025	2.75
13th	26	169	6.54	600	91	5281	15209	2.88

CANEDINS R41 BLACK - ATYPICAL GROWTH - CONSUMPTION:

FEMALE								
PER WEEK					TOTAL			
Week	ADG (g)	Feed (g/d/subject)	Instant FCR	Water (ml/d/subject)	Age (in days)	Live weight (g)	Total con- sumption (g/subject)	Total FCR
1st	15	18	1.20	100	7	156	129	0.83
2nd	28	43	1.53	200	14	353	431	1.22
3rd	38	67	1.75	280	21	622	902	1.45
4th	44	120	2.71	340	28	933	1745	1.87
5th	56	149	2.64	380	35	1327	2787	2.10
6th	61	160	2.63	400	42	1753	3909	2.23
7th	55	153	2.79	400	49	2136	4977	2.33
8th	40	138	3.45	400	56	2416	5943	2.46
9th	33	129	3.97	400	63	2644	6848	2.59
10th	22	122	5.46	400	70	2800	7700	2.75
11th	13	111	8.35	400	77	2893	8476	2.93



CANEDINS R61 BANDED BLUE GROWTH - CONSUMPTION:

MALES								
PER WEEK					TOTAL			
Week	ADG (g)	Feed (g/d/subject)	Instant FCR	Water (ml/d/subject)	Age (in days)	Live weight (g)	Total con- sumption (g/subject)	Total FCR
1st	8	12	1.49	100	7	106	86	0.81
2nd	23	32	1.43	200	14	264	312	1.18
3rd	45	74	1.66	320	21	576	829	1.44
4th	69	133	1.95	440	28	1056	1764	1.67
5th	89	190	2.13	480	35	1680	3091	1.84
6th	96	210	2.19	540	42	2352	4563	1.94
7th	89	237	2.66	570	49	2976	6220	2.09
8th	82	248	3.02	600	56	3552	7956	2.24
9th	62	212	3.44	600	63	3984	9442	2.37
10th	55	192	3.51	600	70	4368	10789	2.47
11th	34	151	4.39	600	77	4608	11843	2.57
12th	27	146	5.32	600	84	4800	12864	2.68
13th	21	142	6.63	600	91	4950	13861	2.80

CANEDINS R61 BANDED BLUE GROWTH - CONSUMPTION:

FEMALE								
PER WEEK					TOTAL			
Week	ADG (g)	Feed (g/d/subject)	Instant FCR	Water (ml/d/subject)	Age (in days)	Live weight (g)	Total con- sumption (g/subject)	Total FCR
1st	6	11	1.80	100	7	89	74	0.83
2nd	21	31	1.45	200	14	238	290	1.22
3rd	35	59	1.67	280	21	486	705	1.45
4th	42	109	2.56	340	28	783	1464	1.87
5th	58	147	2.54	380	35	1188	2495	2.10
6th	69	177	2.55	400	42	1674	3733	2.23
7th	58	159	2.74	400	49	2079	4844	2.33
8th	42	143	3.37	400	56	2376	5845	2.46
9th	27	114	4.22	400	63	2565	6643	2.59
10th	19	112	5.79	400	70	2700	7425	2.75
11th	8	92	11.93	400	77	2754	8069	2.93



CANEDINS R71M WHITE GROWTH - CONSUMPTION:

MALES								
PER WEEK					TOTAL			
Week	ADG (g)	Feed (g/d/subject)	Instant FCR	Water (ml/d/subject)	Age (in days)	Live weight (g)	Total con- sumption (g/subject)	Total FCR
1st	9	13	1.42	100	7	110	88	0.80
2nd	20	29	1.45	200	14	250	291	1.16
3rd	39	65	1.67	320	21	520	743	1.43
4th	57	111	1.95	440	28	920	1521	1.65
5th	62	135	2.17	480	35	1355	2465	1.82
6th	85	182	2.14	540	42	1950	3738	1.92
7th	86	218	2.54	570	49	2550	5261	2.06
8th	82	240	2.92	600	56	3125	6938	2.22
9th	77	233	3.01	600	63	3665	8565	2.34
10th	62	203	3.26	600	70	4100	9984	2.44
11th	50	190	3.80	600	77	4450	11312	2.54
12th	29	144	5.05	600	84	4650	12323	2.65
13th	24	150	6.36	600	91	4815	13371	2.78

CANEDINS R71M WHITE GROWTH - CONSUMPTION:

FEMALE								
PER WEEK					TOTAL			
Week	ADG (g)	Feed (g/d/subject)	Instant FCR	Water (ml/d/subject)	Age (in days)	Live weight (g)	Total con- sumption (g/subject)	Total FCR
1st	8	12	1.50	100	7	102	81	0.795
2nd	20	29	1.45	200	14	244	286	1.174
3rd	28	47	1.69	280	21	438	614	1.401
4th	42	94	2.26	340	28	731	1275	1.744
5th	56	133	2.36	380	35	1124	2204	1.961
6th	63	162	2.55	400	42	1568	3338	2.129
7th	56	151	2.70	400	49	1961	4399	2.243
8th	42	133	3.19	400	56	2254	5333	2.366
9th	28	112	4.05	400	63	2447	6115	2.499
10th	15	92	6.24	400	70	2550	6758	2.650
11th	6	80	12.79	400	77	2594	7320	2.822



CANEDINS R71L WHITE GROWTH - CONSUMPTION:

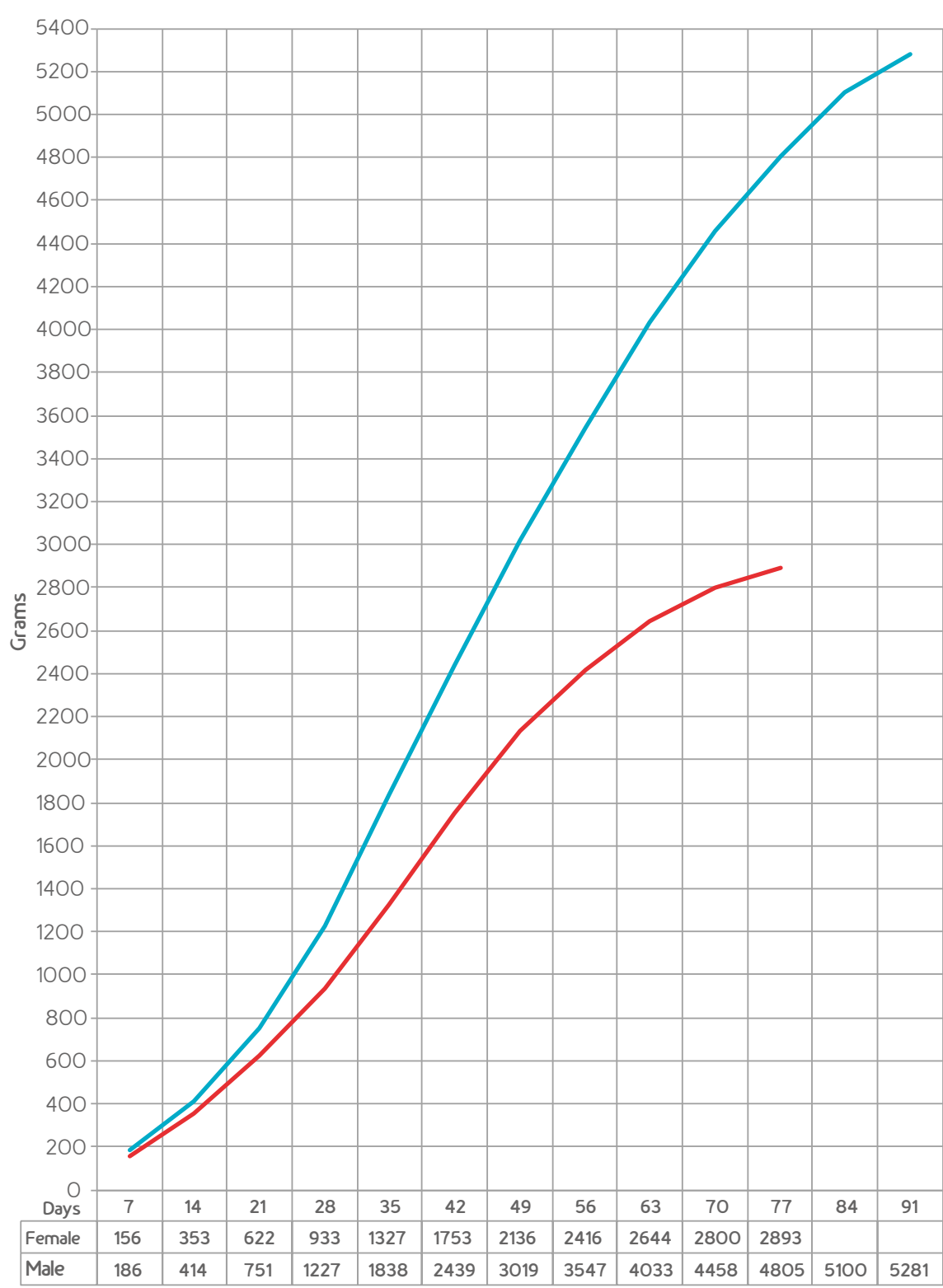
MALES								
PER WEEK					TOTAL			
Week	ADG (g)	Feed (g/d/subject)	Instant FCR	Water (ml/d/subject)	Age (in days)	Live weight (g)	Total con- sumption (g/subject)	Total FCR
1st	7	12	1.58	100	7	100	82	0.82
2nd	21	31	1.44	200	14	250	298	1.19
3rd	43	71	1.67	320	21	550	798	1.45
4th	64	126	1.96	440	28	1000	1680	1.68
5th	86	183	2.13	480	35	1600	2960	1.85
6th	107	232	2.16	540	42	2350	4583	1.95
7th	93	245	2.64	570	49	3000	6300	2.10
8th	86	262	3.06	600	56	3600	8136	2.26
9th	71	232	3.24	600	63	4100	9758	2.38
10th	57	200	3.51	600	70	4500	11160	2.48
11th	43	182	4.24	600	77	4800	12432	2.59
12th	29	153	5.34	600	84	5000	13500	2.70
13th	21	154	7.16	600	91	5150	14575	2.83

CANEDINS R71L WHITE GROWTH - CONSUMPTION:

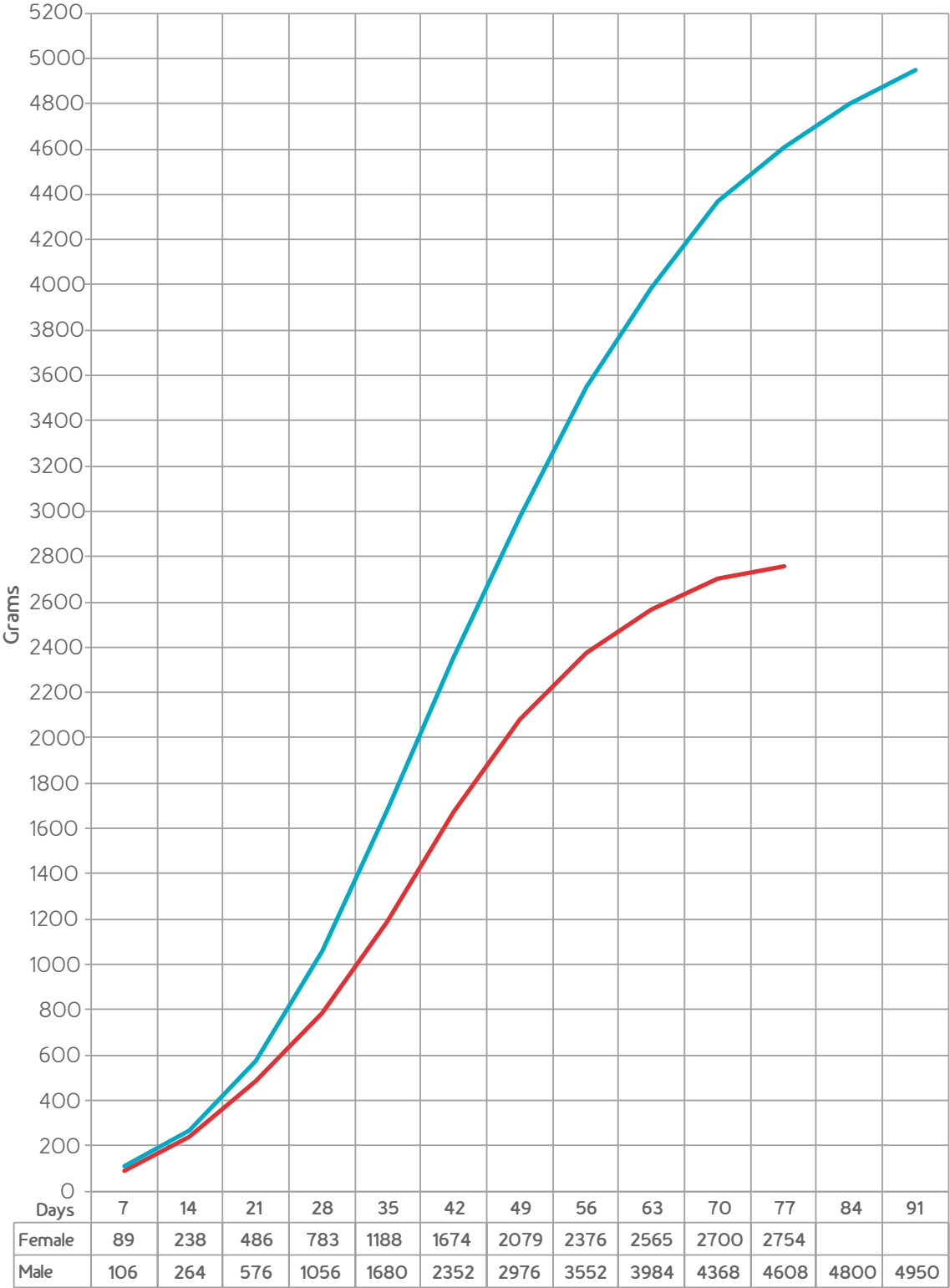
FEMALE								
PER WEEK					TOTAL			
Week	ADG (g)	Feed (g/d/subject)	Instant FCR	Water (ml/d/subject)	Age (in days)	Live weight (g)	Total con- sumption (g/subject)	Total FCR
1st	5	10	1.92	100	7	83	67	0.81
2nd	20	28	1.44	200	14	220	264	1.20
3rd	31	52	1.66	280	21	440	629	1.43
4th	43	104	2.41	340	28	743	1360	1.83
5th	55	138	2.50	380	35	1128	2324	2.06
6th	71	176	2.49	400	42	1623	3554	2.19
7th	63	167	2.66	400	49	2063	4724	2.29
8th	47	149	3.16	400	56	2393	5767	2.41
9th	31	128	4.07	400	63	2613	6663	2.55
10th	20	109	5.56	400	70	2750	7425	2.70
11th	8	89	11.37	400	77	2805	8050	2.87



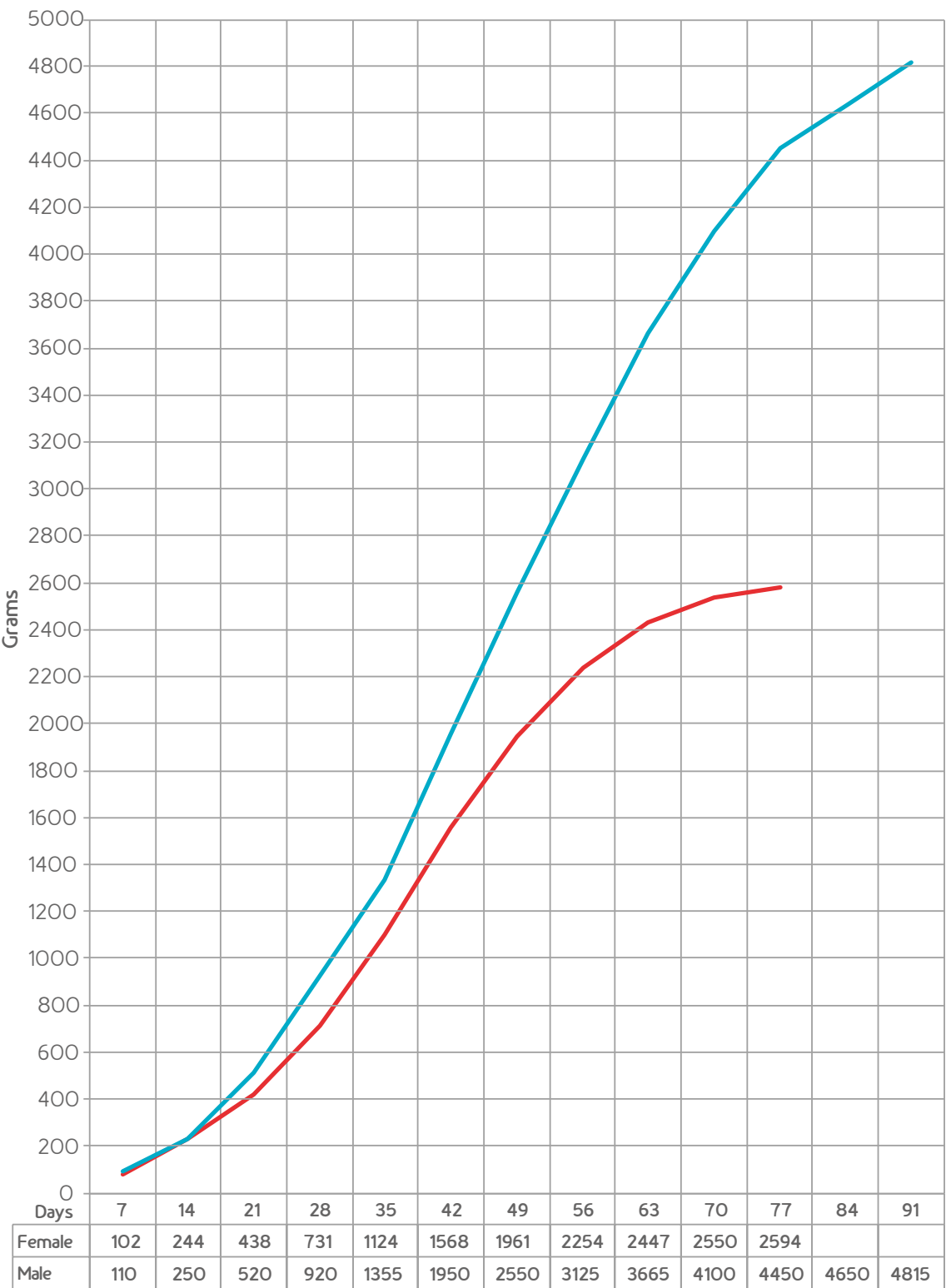
BROILER CANEDIN **GROWTH CURVE R41:**



BROILER CANEDIN GROWTH CURVE R61:



BROILER CANEDIN GROWTH CURVE R71M:



BROILER CANEDIN GROWTH CURVE R71L:

