



## KOUDIJS AKF FISH FEED PROGRAM

The Koudijs AKF Tilapia feed assortment is based on the local Ethiopian needs and the global insights gained in Asia and Africa of keeping Tilapia. The Ethiopian assortment is build around a crucial **Starter Feed** for young fry and fingerling and a **Grower Feed** to optimise the performance of tilapia without compromising water quality.

### STARTER FEED (9004 - 40% CP)

Special attention should be given to the feeding and management of young fry and fingerling. Even when natural food is present in a pond, feeding fingerling commercial feed is advised. Fingerlings can be fed on the

second day after putting them in the system. During the starter phase, 0.01-5 gr fish achieve the highest specific growth rate and feed at the highest frequency. Fish should be fed at satiation (~8.0-10.0 % of total fish weight) to result in optimal growth during this period. During the nursery phase, feeding frequency should be done as often as possible with the available manpower (or automation) and preferable at least between 6-9 times a day.

Koudijs AKF has developed fingerling feed containing the required protein and energy level and the necessary minerals and vitamins to target good growth, an optimal development of all body tissues and early stimulation of the immune system.

Size of fish (g)	Product	Technology	Particle size (mm)	Crude Protein (%)	Crude Fat (%)	Digestible Energy (MJ/kg)	Phosphorus (%)
0.01-1	<b>9004</b>	<b>Powder 0</b>	<b>&lt;0.5</b>	<b>40.0</b>	<b>7.0</b>	<b>15.5</b>	<b>1.5</b>
1-2.5	<b>9004</b>	<b>Crumble 1</b>	<b>0.5-0.8</b>	<b>40.0</b>	<b>7.0</b>	<b>15.5</b>	<b>1.5</b>
2.5-5	<b>9004</b>	<b>Crumble 2</b>	<b>0.8-1.2</b>	<b>40.0</b>	<b>7.0</b>	<b>15.5</b>	<b>1.5</b>

### GROWER FEED (9008 - 32% CP)

Koudijs AFK offers an optimal grower feed designed to optimise the performance of tilapia without compromising water quality. Tilapia grower feeds are formulated with the precise levels of nutrients to maximise nutrient utilisation for fish growth and minimise

nutrient loss. During the grower phase, feeding frequency can be reduced to a min of 2 times/day.

- Optimised and specific nutritional profile
- Small particle sizes, floating and water stable
- Improved fish performance, uniformity and survival

Size of fish (g)	Product	Technology	Particle size (mm)	Crude Protein (%)	Crude Fat (%)	Digestible Energy (MJ/kg)	Phosphorus (%)
5-25	<b>9008</b>	<b>Floating</b>	<b>2.0</b>	<b>32.0</b>	<b>6.5</b>	<b>15.0</b>	<b>1.0</b>
25-200	<b>9008</b>	<b>Floating</b>	<b>3.0</b>	<b>32.0</b>	<b>6.5</b>	<b>15.0</b>	<b>1.0</b>
>200	<b>9008</b>	<b>Floating</b>	<b>4.5</b>	<b>32.0</b>	<b>6.5</b>	<b>15.0</b>	<b>1.0</b>

# RECOMMENDED FEEDING LEVELS AND FEEDING FREQUENCY

Feeding Level (Kg feed per 100 kg fish per day)

Age (weeks)	Size of fish (g)	Protein (%)	Feeding frequency (times/day)	Temp 18 °C	Temp 22 °C	Temp 26 °C	Temp 29 °C	Temp 33 °C
0-3	0.01-1	40	8-9	4.5	5.5	7.5	10.0	8.0
4-6	1-2.5	40	5-6	3.6	4.0	5.0	6.0	5.5
7-8	2.5-5	40	5-6	3.1	3.5	4.5	5.5	5
9-12	5-25	32	3-4	2.2	3.0	4.0	4.5	4.5
13-15	25-50	32	2-3	1.0	2.0	3.0	4.0	3.5
15-17	50-100	32	2	0.58	1.45	2.00	2.90	2.30
18-22	100-200	32	2	0.50	1.25	1.75	2.50	2.00
23-30	200-400	32	2	0.40	1.00	1.40	2.00	1.60
>31	>400	32	2	0.36	0.80	1.26	1.8	1.30

\*The Feeding advice is only a guideline: feed should be adjusted accordingly based on temperature, water quality, and health status of the fish. It is recommended to stop feeding or feed to fish appetite when temperature is <13°C or >33°C .

## PRACTICAL RECOMMENDATIONS

### Feed storage

- Products should be stored in a clean, dry and cool environment protected from the sun.
- Bags should not directly touch the floor or wall and instead should lie along a plastic sheet or preferably a wooden slat/steel pallets.
- First In First Out: keep newly delivered feed separate from old feed to avoid the development of moulds and toxins.

### Feeding management

- Before feeding always consider the following our factors: season, weather, water quality and fish eating situation.
- Feed the fish according to their appetite so, do not overfeed.
- Feed ration and pellet size should be determined based on the total weight of fish in the pond and fish size.
- Spread out the feed as evenly as possible in water surface to decrease dominance.

- Feed with the wind behind, so that any feed fines if present blow into the pond.

### Body weight

- Sample fish every 2-3 weeks to calculate the average weight increase and then adjust the feeding ration.
- Do not be selective in weighing, weigh at least 10% of population (50-100 fish/sample).
- To attain the best performance, we highly advise the use of a farm tracker to monitor the progress of your farm. The tracker should take into account daily feed intake, mortality, weight of dead fish, water conditions (pH, temperature, and turbidity), and the use of any medications/additives.

### Water quality

- Before feeding check water quality (at least temperature and oxygen), if parameters exceed their limits feeding should be reduced or stopped.

The optimal values for water quality parameters for Tilapia can be seen in table below:

Water Quality Parameter	Recommended Value	Corrected Measures
Temperature °C	27-30	Decrease feeding
Oxygen (mg/l)	>4	Increase aeration, water exchange and decrease feeding
Total suspended solids mg/l	<20	Increase water exchange
NH3 mg/l	<0.07	Increase water exchange add denitrifying pre/pro biotics
Nitrite (NO2) mg/l	25-50	
Nitrate (NO3) mg/l	<4	
Ammonium (NH4) mg/l	100-200	
pH	<300	Increase water exchange Add HCL or Sodium bicarbonate