|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Crop** | **Basal Fertilizer** | **Top Dressing** | **Organic Manure** | **Micronutrients** |
| Super Napier CO4 | 50 kg NPK 14-14-14 per acre before planting | 50 kg NPK 14-14-14 per acre after 30 days and after each harvest | 5–10 tons per hectare before planting | Foliar application 20 days after planting |
| Hedge Lucerne | 15 kg N, 50 kg P₂O₅, 20 kg K₂O per hectare at sowing | 10 kg N per hectare after each cutting | Not applicable | Ensure adequate S, Mo, and B levels |

**Integrated Cultivation Plan: Super Napier CO4 & Hedge Lucerne**

|  |  |  |
| --- | --- | --- |
| **Aspect** | **Super Napier CO4** | **Hedge Lucerne (Desmanthus virgatus)** |
| **Sowing Time** | Monsoon season (June–July) for rainfed conditions. | Mid-October to early November for optimal growth. |
| **Spacing** | 90 cm × 60 cm. | 30 cm row spacing. |
| **Seed Rate** | 10,000–12,000 stems per acre. | 6–8 kg per acre. |
| **Fertilizer** | Basal: 50 kg NPK 14-14-14 per acre before planting. Top dressing: 50 kg NPK 14-14-14 per acre after 30 days and after each harvest. | Basal: 15 kg N, 50 kg P₂O₅, and 20 kg K₂O per hectare at sowing. Top dressing: 10 kg N per hectare after each cutting. |
| **Irrigation** | Water immediately after planting. Subsequent irrigation every 2–3 days until establishment. Once established, irrigate weekly. | Water immediately after sowing. Subsequent irrigation every 3–4 days until establishment. Once established, irrigate weekly. |
| **Weed Control** | Manual weeding or mulching to control weeds. | First hoeing one month after sowing. |
| **Pest Control** | Monitor for leafhoppers or fungal infections. | Spray Malathion 50EC @350ml in 150 litres of water per acre if infestation observed. |
| **Harvesting** | First at 60–75 days, subsequent every 40–50 days. Cut 3–4 inches above ground to promote regrowth. | First after 45 days, subsequent every 25–30 days. |
| **Annual Yield** | Approximately 200–250 tonnes per acre. | Approximately 130–150 tonnes per hectare. |

|  |  |  |  |
| --- | --- | --- | --- |
| **Step** | **Activity** | **Purpose** | **Notes** |
| 1 | Quarantine (21 days) | Prevent disease spread | Isolate from flock immediately |
| 2 | Full Physical Exam | Identify illness or weakness | Check temperature, body condition, FAMACHA |
| 3 | Deworming (Albendazole or Levamisole) | Remove internal parasites | Do this on Day 1 |
| 4 | External Parasite Treatment | Remove lice/ticks/mange | Ivermectin spray or injectable |
| 5 | Start record keeping | Baseline for monitoring | Use notebook or app |

**PHASE 1: On Arrival (Day 1–3)**

**PHASE 2: First Week (Day 4–7)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step** | **Activity** | **Purpose** | **Notes** |
| 6 | Vaccinate (PPR + ET + Tetanus if needed) | Core protection | Do **at least 3 days after deworming** |
| 7 | Feed mineral mix + Vitamin B-complex | Immune and growth support | Oral or injectable, continue regularly |
| 8 | Start electrolytes/probiotics if stressed | Digestive/stress recovery | Use especially after transport |

**PHASE 3: 2nd to 4th Week (Day 8–30)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step** | **Activity** | **Purpose** | **Notes** |
| 9 | Monitor daily: health, appetite, feces | Early disease detection | Look for diarrhea, coughing, listlessness |
| 10 | Weekly FAMACHA check | Anemia screening | Use iron tonic if pale |
| 11 | Continue clean water, fodder, concentrate | Growth | Ensure protein, fiber, minerals |
| 12 | Maintain clean, ventilated housing | Disease prevention | Regularly remove dung, disinfect surfaces |

**PHASE 4: End of Month 1 (Week 4–5)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step** | **Activity** | **Purpose** | **Notes** |
| 13 | **Booster vaccines** (PPR + ET) | Long-term immunity | 3–4 weeks after first shot |
| 14 | Deworm again (different class) | Parasite rotation | E.g., use Closantel if Albendazole was first |
| 15 | External parasite spray again (if needed) | Mange, ticks | Cypermethrin or Ivermectin-based products |

**PHASE 5: Ongoing Management (Months 2–4)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step** | **Activity** | **Frequency** | **Purpose** |
| 16 | Monitor body condition & weight | Every 2 weeks | Check growth |
| 17 | Feed high-quality balanced diet | Daily | Fodder + concentrate (soybean, maize, bran) |
| 18 | Deworming rotation | Every 3–4 weeks | Prevent resistance |
| 19 | External parasite control | Monthly or as needed | Especially during monsoon |
| 20 | Record all health events | Ongoing | Easier tracking for sale readiness |

**FINAL PHASE: At 5–6 Months of Age (Ready for Sale)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step** | **Activity** | **Purpose** | **Notes** |
| 21 | Optional booster (PPR + ET) | Increases market value | Especially for breeding/show sheep |
| 22 | Final deworming + parasite spray | Clean animal | Reduces risk at sale/transport |
| 23 | Final health & weight check | Assess readiness | Target ideal market weight |
| 24 | Stress management before transport | Avoid losses | Use electrolytes, don’t transport in heat |

**Recommended Gap Between Treatments**

|  |  |  |  |
| --- | --- | --- | --- |
| **Action 1** | **Action 2** | **Gap** | **Why** |
| Deworming | Vaccination | Wait 3–7 days | Reduces parasite load → better vaccine response |
| Vaccination | Deworming | Wait 7+ days | Prevent stress overlap & interference |

**Goal: Healthy Growth + Maximum Weight Gain (3–4 Months)**

### ****Age: 3 Months (Start Point)****

✅ Target weight at 3 months: **15–20 kg**  
🎯 Goal by 6–7 months: **35–40+ kg** (breed-dependent)

**WEEKLY PLAN STRUCTURE:**

|  |  |
| --- | --- |
| **Time Frame** | **Focus Area** |
| **Week 1–2** | Vaccinations, deworming, starter feeding routine |
| **Week 3–4** | Gut development, feed intake boost, mineral introduction |
| **Month 2–3** | Muscle and frame building, energy intake, health monitoring |
| **Month 4** | Final fattening phase, prevent slowdown, pre-sale health prep |

## **DAILY FEEDING PLAN (for Weight Gain)**

### 🐏 ****Feeding Schedule**** (Per Sheep Per Day)

|  |  |  |  |
| --- | --- | --- | --- |
| **Time** | **Feed** | **Quantity** | **Purpose** |
| 7:00 AM | **Desmanthus (Hedge Lucerne)** | 1.0 kg (fresh) | High protein start, improves rumen flora |
| 11:00 AM | **Napier Grass (CO-4/CO-5)** | 1.0 kg (fresh) | Bulk, fiber-rich, maintains rumen fill |
| 2:30 PM | **Molasses + Bran Mash** | ~225 g mash | Energy boost, increases appetite |
| 5:30 PM | **Chopped Mix (Napier + Desmanthus)** | 0.5–1.0 kg | Balanced digestion overnight |
| All day | **Mineral Mixture + Salt** | 10–15 g | Improves immunity, growth, bone strength |
| All day | **Clean Drinking Water** | Free access | Digestion, especially with fibrous feed |

**WEEKLY FEED SUMMARY (for 1 Lamb)**

|  |  |
| --- | --- |
| **Component** | **Quantity/Week** |
| Napier Grass | 10.5–12 kg |
| Desmanthus | 7.0–8.0 kg |
| Molasses | ~0.9 kg |
| Bran | ~0.7 kg |
| Mineral Mix | ~80–100 g |
| Water | ~40+ liters |

## NUTRITIONAL SUPPORT

* **Optional Concentrate Feed** (if faster gain needed):
  + 150–200 g/day (12–14% protein pellet)
  + Best offered in the evening or mixed with molasses
* **Growth Boosters (Optional):**
  + Add **yeast culture** or **probiotics** weekly to mash

**HEALTH & TREATMENT SCHEDULE**

|  |  |  |
| --- | --- | --- |
| **Age / Time** | **Task** | **Notes** |
| 3 Months (start) | **Vaccinate: Enterotoxaemia** | If not done yet |
|  | **Deworm (Albendazole / Fenbendazole)** | Target roundworms, coccidia |
| 3.5 Months | Monitor for diarrhea/cough | Add gut tonics if needed |
| 4 Months | **Boost: PPR / FMD vaccine** | Based on vet advice |
| 5 Months | **Repeat deworming** | Rotate drugs if needed |
| 6 Months | Final health check before sale | Weight, hooves, coat, appetite |

## **BIOSECURITY & MANAGEMENT**

* 🏠 Keep shelter clean and **dry** – avoid moisture to prevent foot rot.
* 🚫 Avoid overcrowding – each lamb needs space to move.
* ✅ Use **footbaths** (weekly): Zinc/Copper sulfate (10%) for hoof health.
* 🧴 Spray with **anti-parasitic** (monthly) – control lice, ticks, mange.
* 🧽 Disinfect water troughs weekly.
* 🧤 Isolate sick or coughing animals immediately.

## 📈 MONITORING & TARGETS

|  |  |  |
| --- | --- | --- |
| **Month** | **Expected Weight Gain** | **Total Weight Goal** |
| Start | ~15–20 kg | Starting point |
| 1 | +3–5 kg | 20–25 kg |
| 2 | +5–7 kg | 27–32 kg |
| 3 | +6–8 kg | 33–40 kg+ |

 Check weight **every 2 weeks**

 ✅ Healthy lamb should show:

* Clean eyes, shiny coat
* Firm dung
* Steady appetite
* Active, alert behavior

## **Recommended Additions / Improvements**

### 🥼 ****1. Vitamin Supplementation (Often Overlooked)****

* Add **Vitamin ADE injections** at 3.5–4 months if lambs show slow growth or weak legs.
* Especially helpful during the rainy season or if animals are housed indoors often.

|  |  |  |
| --- | --- | --- |
| **Task** | **When** | **Dosage** |
| Vitamin ADE | 3.5–4 months | 1–2 ml IM per lamb (as per label) |

**Anti-Bloat Precautions:**

If lambs are eating **lush Desmanthus or legumes**, bloat can be a risk:

* Add **anti-bloat liquid** to water (e.g. poloxalene) or
* Offer small amounts of rough straw (100–200 g) in the morning to reduce risk

### ****3. Body Condition Scoring (BCS)****

Every 2 weeks, visually and manually check **BCS on a 1–5 scale**.

* Goal BCS: **3.0–3.5**
* <2.5 = Underfed
* 4 = Overfat, reduces feed efficiency

Helps **fine-tune feed** and prevent over/underfeeding.

### ****4. Fecal Egg Count (FEC) Monitoring****

If possible, perform a **FEC test every 6–8 weeks** to decide if deworming is truly needed.

* Prevents drug resistance
* Can be done by vet or animal health worker

### ****5. Pasture Access (If Available)****

If lambs can graze in addition to stall feed:

* 1–2 hours daily grazing boosts health and feed variety
* Reduces cost of green fodder
* Watch for **parasite risk** (keep rotation & avoid wet grazing)

**6. Record Keeping Suggestion:**

Encourage simple data tracking:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Date** | **Weight** | **BCS** | **Treatments** | **Feed Issues** | **Notes** |
| 01-Aug | 17.5 kg | 3.0 | Dewormed (Albendazole) | OK | – |

This helps spot patterns early (e.g., feed not working, repeat illness).

### ****7. Pre-Sale Preparation Tips (Final Month)****

* Wash/scrub lambs gently with warm water to improve coat shine
* Clip hooves and clean ear tags
* Give 7–10 days of **extra mash/molasses** if needed for finish