



CAL INGOT[®]

**Ingredients for Feed Manufacture
FARMS Package**



www.aunir.co.uk

Tel. +44 (0) 1327 810910 Fax. +44 (0) 1327 810911 Email. info@ aunir.co.uk

Contents

Analytical Methods

Moisture	<i>i</i>
Fat (Ether Extract and Acid Hydrolysis)	<i>i</i>
Protein	<i>i</i>
Crude Fibre	<i>ii</i>
Ash	<i>ii</i>
Starch	<i>ii</i>
Total Sugar	<i>iii</i>
NDF	<i>iii</i>
NCGD	<i>iii</i>
ADF	<i>iv</i>

Raw Materials

Alfalfa Lucerne	1
Barley	2
Barley Bran	3
Beans	4
Biscuits Meal High Oil	5
Biscuit Meal Low Oil	6
Blood and Plasma	7
Bone Meal	8
Cassava	9
Citrus	10
Cocoa	11
Copra	12
Copra Extract	13
Corn Gluten Feed 20%	14
Corn Gluten Feed 60%	15
Cotton Extract	16
Cotton Seed Expeller	17
Crab	18
Distillery High Protein	19
Distillery Low Protein	20
Dried Whey	21

Contents

Raw Materials (*continued*)

Feather Meal	22
Fish Meal	23
Full Cream Milk Powder	24
Full Fat Soya	25
Grain Screenings	26
Grass Meal	27
Groundnut Extract	28
Hominy	29
Linseed Expeller	30
Linseed Extract	31
Locust Bean	32
Lupins	33
Maize (Corn)	34
Maize Germ	35
Maize Germ Meal	36
Maize Meal	37
Malt Residue	38
Meat and Bone Meal	39
Oat Feed	40
Oat Flour	41
Oats	42
Palm Kernel High Oil	43
Palm Kernel Low Oil	44
Peas	45
Potato Products	46
Poultry By-Products	47
Rape Meal Extract	48
Rape Seed Expeller	49
Rape-Pulse Mix	50
Red Wheat	51
Rice	52
Rice Bran Extract	53
Rice Bran High Oil	54
Rye	55
Sesame Expeller	56

Contents**Raw Materials (*continued*)**

Sesame Meal Extract	57
Shea Nut Meal	58
Shrimp	59
Skimmed Milk Powder	60
Sorghum	61
Soya Hulls	62
Soya Meal Extract	63
Soya Bean Expeller	64
Sugar Beet	65
Sunflower Extract	66
Sunflower Seeds	67
Triticale	68
Wheat	69
Wheatfeed Middling	70
Whole Linseed	71
Whole Rape	72
Whole Soyabean	73

Method	Scope
MOISTURE	The method is applicable to feeding stuffs, minerals and premixes, dairy products, meat and meat products, oils and fats, cereal foods and unspecified food with an expected moisture range of 0.1 to 99.9%. This method is not suitable for high sugar materials such as molasses or syrups, which should be analysed for moisture by the vacuum oven method.
Principle	
A known weight of sample is placed in an oven at a given temperature and for a given length of time. After cooling it is re-weighed and the loss of weight is the moisture content of the sample.	

Method	Scope
FAT	The fat in the sample is removed by dissolving it in boiling petroleum spirit. The petroleum spirit is distilled off and the extracted fat /oil is dried and weighed. This portion is referred to as the ether extractable fat or Oil A.
Principle	
The fat or oil in the sample is removed by dissolving it in boiling petroleum spirit. The petroleum spirit is distilled off and the extracted fat /oil is dried and weighed. This portion is referred to as the ether extractable fat or Oil A. If the total fat /oil is required the residue remaining after ether extraction is hydrolysed using hydrochloric acid. After filtration, washing and drying this residue is re-extracted with petroleum spirit. The petroleum spirit is distilled off and the extracted fatt /oil is dried and weighed. This value is added to the Oil A value to give the total fat /oil or Oil B.	

Method	Scope
PROTEIN	The method is applicable to feeding stuffs, minerals and premixes, meat and meat products, dairy products, cereal foods and unspecified food within the range of 0.01% to 26.1% nitrogen
Principle	
Nitrogen is measured using the Dumas technique. This technique is carried out automatically using either an FP428 or CNS2000 instrument, both supplied by the Leco Corporation. The technique is based on measuring the thermal conductivity of nitrogen gas. A sample is introduced into a high temperature furnace where it combusts in an oxygen rich environment. The products of this combustion are ash (which contains no nitrogen), water and various gases i.e. carbon dioxide, sulphur dioxide, halogens, nitrogen and nitrogen oxides. A thermoelectric cooler removes the water, the gases are then passed through filter tubes and collected in a ballast tank where they equilibrate. An aliquot of this gas is then taken and swept by the carrier gas (Helium) through various absorption and reduction tubes until only nitrogen and helium remain. These gases then flow through a Thermal Conductivity (TC) cell where the nitrogen content is measured. Crude protein can be calculated by multiplying the nitrogen present by a factor of 6.25 (this is based on protein containing 16% nitrogen).	

Method	Scope
CRUDE FIBRE	The method is applicable to feeding stuffs, cereal foods and unspecified food with crude fibre levels in the range 0.5 to 34.1%
Principle	
The sample is treated with boiling solutions of sulphuric acid and sodium hydroxide, under controlled conditions. The residue is separated by filtration, washed, dried, weighed and ashed. The loss of weight resulting from ashing corresponds to the fibre present in the sample..	

Method	Scope
ASH	The method is applicable to feeding stuffs, minerals and premixes, meat and meat products, dairy products, cereal foods and unspecified food with an expected ash value in the range 0.2 to 99.2%
Principle	
The sample is ashed in a muffle furnace. After combustion, the remaining material is weighed and classed as the ash content of the sample.	

Method	Scope
STARCH	The method is applicable to feeding stuffs, meat and meat products, dairy products, cereal foods and unspecified food with starch levels in the range 0.1 – 70%
Principle	
Starch is hydrolysed to monosaccharides by the action of dilute hydrochloric acid. After clarification the resulting glucose solution can be measured easily by its ability to rotate plane-polarized light. Some materials contain naturally occurring sugars and these must be determined separately by dissolving them in alcohol, inverting them to glucose by the action of dilute hydrochloric acid and again measuring by polarimetry. This figure is subtracted from the total	

Method	Scope
TOTAL SUGAR	The method is applicable to feeding stuffs, cereal foods and unspecified food with sugar content in the range 0.4 to 70.0%
Principle	
<p>The sugars present in the sample are extracted with Industrial Methylated Spirit. The solution is clarified using Carrez solutions and the sugars are inverted by hydrolysis with hydrochloric acid. These sugars are then determined by the Luff-Schoorl method and the results reported as Total Sugar expressed as sucrose (6.2)..</p>	

Method	Scope
NDF	The method is applicable to feeding stuffs, cereal foods and unspecified food with NDF levels in the range 0.1 to 77.1%
Principle	
<p>The sample is treated with a neutral detergent solution which breaks down the cell walls allowing the cell contents to be extracted. Any starch present is removed by conversion to soluble sugars by the action of amylase. The organic fraction of the insoluble material is neutral detergent fibre (NDF))</p>	

Method	Scope
NCGD	The method is applicable to feeding stuffs with NCGD levels in the range 0.1 to 99.8%
Principle	
<p>The sample is treated with a neutral detergent solution which breaks down the cell walls allowing the cell contents to be extracted. Any starch present is removed by conversion to soluble sugars by the action of amylase. The resultant neutral detergent fibre (NDF) is, after washing, digested by buffered cellulase/gammanase. Any material that is undigested is collected and the organic matter determined.</p> <p>Note; to obtain a final result for the NCGD material a moisture and an ash determination are required. (NEUTRAL CELLULASE GAMMANASE DIGESTIBILITY)</p>	

Method	Scope
ADF*	ADF is used for standard Forage testing and has been modified for non Forage samples to compensate for not drying (Modified Acid Detergent Fibre).
Principle	
<p>The sample is refluxed for 45 minutes with Acidified Detergent (Cetyl Trimethyl Ammonium Bromide) and then filtered through a sintered glass crucible and washed. The residue is the ADF and primarily represents Cellulose and Lignin. ADF is used to calculate digestibility..</p>	

ALFALFA LUCERNE

Feed Ingredient

Physical Form: Dark green grass, Clover like material which may be pelleted or cubed

Description: Alfalfa meal is obtained by the high temperature drying. The product may contain approximately 20% of grass or clover artificially dried and possibly pre-dried at the same time as the Alfalfa. Alfalfa meal is a good source of protein and fibre. The protein is not readily digested by pigs and poultry, and the fibre content restricts its use to ruminant feeds.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	6	12	9	Yes
Fat (EE)	1.8	3.5	2.6	Yes
Fat (AH)	2	4.1	3.4	Yes
Protein	13	21	18	Yes
Crude Fibre	16	32	25	Yes
Ash	7.5	12	9.5	Yes
Starch	0.1	1	*	*
Total Sugars	3	12	5.5	*
NDF	35	60	45	Yes
ADF	18	42	30	*
NCGD	40	65	55	Yes

* Contact Aunir or your Head Office for application availability

BARLEY

Feed, Food and Beverage Ingredient

Also known as: Rolled Barley, Pearl Barley, Pot Barley, Flaked Barley, Winter and Spring Barley

Physical Form: Thin Spear like grains which are golden yellow

Description: Barley is a good source of energy which is easily digested by all classes of livestock. The grain is used mainly in the brewing and distillery industries. Barley samples failing to reach the standards for brewing/distilling are used in animal feeds.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	10.5	15	13	Yes
Fat (EE)	1	2.8	2	Yes
Fat (AH)	1.3	3.3	2.3	Yes
Protein	9	15.6	11.4	Yes
Crude Fibre	2.8	6	4.7	Yes
Ash	1.7	3.5	2	Yes
Starch	40	58	50	Yes
Total Sugars	0.5	3.8	1.7	Yes
NDF	13.5	21	16	Yes
ADF	4.5	7	5.5	Yes
NCGD	79	86.5	84	Yes

* Contact Aunir or your Head Office for application availability

BARLEY BRAN

Feed Ingredient

Physical Form: Light Brown Flakes

Description: Barley bran husk is obtained from the spent grains in the brewing process. Bran is the hard outer layer of grain and consists of combined aleurone and pericarp. It is produced as a by-product of milling in the production of refined grains. Bran is parti

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	7.5	11.1	10.5	Yes
Fat (EE)	2.4	3.9	2.8	Yes
Fat (AH)	2.7	3.6	3	Yes
Protein	7.9	13.5	12.8	Yes
Crude Fibre	8.7	19.4	15.5	Yes
Ash	4.6	6.5	5	Yes
Starch	24.5	32.5	29.9	Yes
Total Sugars	4.8	7.4	6.5	Yes
NDF	46.9	53.5	50	*
ADF	21	24.5	22.3	Yes
NCGD	46.5	53.1	50	Yes

* Contact Aunir or your Head Office for application availability

BEANS

Feed Ingredient

Also known as: Broad beans, Horse beans, English beans, European beans, Windsor beans, Field beans, Haricot beans, Snap Beans, Wax Beans, Pinto beans, Butter beans and Tick beans

Physical Form: Dried field beans are round and flat, with a wrinkled surface

Description: Beans are an excellent and consistent source of energy and protein in high performance ruminant feeds. Energy is principally supplied in the form of Starch, but also as Digestible Fibre.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	12	16	14.5	Yes
Fat (EE)	0.8	2	1.3	Yes
Fat (AH)	1	2.5	1.5	Yes
Protein	21	27	24	Yes
Crude Fibre	7	10	8	Yes
Ash	2.5	3.5	2.5	Yes
Starch	30	42	35	Yes
Total Sugars	1.5	3	2.5	Yes
NDF	10	18	15	Yes
ADF	7.8	13	10	*
NCGD	82	90	85	Yes

* Contact Aunir or your Head Office for application availability

BISCUIT MEAL HIGH OIL

Feed Ingredient

Also known as: *Biscon and biscuit meal, confectionary meal*

Physical Form: Variable, dependent on the types of biscuit being used

Description: Bakery waste, out of date sweets and waste biscuits are known as biscuit meal and are used in the make-up of some animal feed rations. These waste products are used as an alternative to cereal grains in the animals' diet. They tend to be very palatable and an excellent source of energy for livestock diets

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	1	10	8	Yes
Fat (EE)	0.5	24	18	Yes
Fat (AH)	1	25	19	Yes
Protein	0.5	20	18	Yes
Crude Fibre	1	5	2	Yes
Ash	1	7	1.5	Yes
Starch	0	10	2	Yes
Total Sugars	15	25	22	Yes
NDF	1	15	7	Yes
ADF	*	*	*	*
NCGD	*	*	*	*

* Contact Aunir or your Head Office for application availability

BISCUIT MEAL LOW OIL

Feed Ingredient

Also known as: *Biscon and Low oil biscuit meal, confectionary meal*

Physical Form: Variable, dependent on the types of biscuit being used

Description: A by-product from biscuit manufacture comprising discoloured or broken biscuits . Most biscuit by-products are excellent high energy sources for ruminants with the majority of energy being supplied in the form of Starch, Sugar and Oil. Starch is particularly useful in helping maximise milk protein yields in dairy cows and promoting fast efficient growth in beef cattle. Biscuit meals are

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	9	14	13	Yes
Fat (EE)	3.2	15.7	12.2	Yes
Fat (AH)	4	16.5	13	Yes
Protein	8.5	13.5	10	Yes
Crude Fibre	2.5	7	4.5	Yes
Ash	2	9	4	Yes
Starch	20	40	30	Yes
Total Sugars	8.5	17.5	11.5	Yes
NDF	5.5	25.5	15	Yes
ADF	*	*	*	*
NCGD	74.5	94.5	85	Yes

* Contact Aunir or your Head Office for application availability

BLOOD AND PLASMA

Feed Ingredient

Also known as: Blood Meal, Plasma Meal

Physical Form: Dark Brown Meal

Description: Blood meal is dried, powdered blood. It usually comes from cattle as a slaughterhouse by-product and be used as an animal food supplement.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	8	12.2	9.5	Yes
Fat (EE)	0.45	2.1	0.8	Yes
Fat (AH)	0.5	2.2	2	Yes
Protein	74.2	90	80	Yes
Crude Fibre	0.2	1	0.5	Yes
Ash	1.9	5.5	2.1	Yes
Starch	*	*	*	*
Total Sugars	*	*	*	*
NDF	*	*	*	*
ADF	*	*	*	*
NCGD	*	*	*	*

* Contact Aunir or your Head Office for application availability

BONE MEAL

Feed Ingredient

Physical Form: Brown Meal with Light Flecks

Description: Bone meal is a mixture of crushed and coarsely ground bones that is used in animal feed.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	9.5	16.1	10	Yes
Fat (EE)	3.5	12.1	4.5	Yes
Fat (AH)	3.8	8.9	5.1	Yes
Protein	20.1	64.2	42	Yes
Crude Fibre	0.9	1.9	1.4	Yes
Ash	42.5	66.6	45	Yes
Starch	*	*	*	*
Total Sugars	*	*	*	*
NDF	*	*	*	*
ADF	*	*	*	*
NCGD	*	*	*	*

* Contact Aunir or your Head Office for application availability

CASSAVA

Feed, Food and Chemical

Also known as: *Tapioca*

Physical Form: Thin White Slices

Description: Cassava is an herbaceous shrub, cultivated widely in the tropics and subtropics for its edible roots. One of the highest yielders of starch found in the tropics. Both fresh and dried cassava roots are consumed by ruminants in different forms (sliced, chopped, ground). Dried cassava roots have given satisfactory results as the principal energy source for dairy cattle, intensive beef fattening

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	10	14	12	Yes
Fat (EE)	0.39	0.7	0.5	*
Fat (AH)	0.4	0.7	0.5	*
Protein	2	3.6	2.5	Yes
Crude Fibre	2	6.1	5	Yes
Ash	2	6.2	4.5	Yes
Starch	57	68	62	Yes
Total Sugars	1.5	3.5	2.5	*
NDF	9	10	10	*
ADF	5	7.2	5.5	*
NCGD	*	*	*	*

* Contact Aunir or your Head Office for application availability

CITRUS

Feed Ingredient

Also known as: Citrus Peel, Citrus Rag, Citrus Molasses and Citrus seed meal

Physical Form: Orange to dark brown fibrous-like residue.

Description: Citrus pulp is a by-product of the fruit processing industry. Mainly Grapefruit and Sweet Orange are used for animal feed.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	8.2	13	8.5	Yes
Fat (EE)	2.8	3.8	2.5	Yes
Fat (AH)	3	4.5	2.8	Yes
Protein	4.5	8.1	6.7	Yes
Crude Fibre	11.4	13.1	12.9	Yes
Ash	5.5	7	6	Yes
Starch	2.5	5.5	4	Yes
Total Sugars	23	27	25	Yes
NDF	16	26	22	Yes
ADF	16	19	17.5	*
NCGD	74	84	78	Yes

* Contact Aunir or your Head Office for application availability

COCOA

Feed Ingredient

Also known as: Cocoa bean extract

Physical Form: Dark Brown Meal

Description: A by-product of the manufacture of cocoa powder, chocolate and cocoa butter. Cocoa is high in both digestible fibre and protein. It is useful component of highly digestible fibre feeds and can be used to substitute Maize.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	12.5	15.5	14	Yes
Fat (EE)	1.3	3.3	2.2	Yes
Fat (AH)	1.5	3.5	2.5	Yes
Protein	23.5	25.5	24.5	Yes
Crude Fibre	7	9	8	Yes
Ash	6.5	7.5	7	Yes
Starch	12	15	13.5	Yes
Total Sugars	1.5	5.5	3.5	Yes
NDF	22	26	24	Yes
ADF	*	*	*	*
NCGD	74	78	76	Yes

* Contact Aunir or your Head Office for application availability

COPRA

Feed Ingredient

Also known as: Coconut Expeller and Mataiva

Physical Form: Light to Mid-brown meal or pellets

Description: The oil is extracted from the rough-ground product by chemical solvent to leave a residue, de oiled cake. The use of n-hexane as an extraction solvent which readily removable from the extracted product to ensure untainted and pure product.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	5.5	11.5	8.5	Yes
Fat (EE)	7.5	10.5	9	Yes
Fat (AH)	7.6	10.6	9	Yes
Protein	18	23	21	Yes
Crude Fibre	9	13	11	Yes
Ash	5.5	6.5	6	Yes
Starch	0.5	1.5	1	Yes
Total Sugars	9	10	9.5	Yes
NDF	40	50	45	Yes
ADF	18.3	26.2	20.9	Yes
NCGD	50	60	55	Yes

* Contact Aunir or your Head Office for application availability

COPRA EXTRACT

Feed Ingredient

Also known as: Coconut Expeller and Mataiva

Physical Form: Light to Mid-brown meal or pellets

Description: A by-product of the oil industry, obtained by pressing oil from the Copra, Kernel and husk of the Coconut palm. Copra is a highly palatable, high energy raw material, with the majority of energy supplied in the form of digestible fibre and oil.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	7.9	1.1	8.4	Yes
Fat (EE)	1.5	3.5	2.4	Yes
Fat (AH)	1.8	3	2.9	Yes
Protein	21	26.4	21.5	Yes
Crude Fibre	9.2	15.5	14.6	Yes
Ash	5.5	8	6.5	Yes
Starch	0.5	2	1.7	Yes
Total Sugars	9	11.1	10.1	Yes
NDF	45.8	50	47.2	Yes
ADF	21	30.5	24.5	Yes
NCGD	50	54.2	52.8	Yes

* Contact Aunir or your Head Office for application availability

CORN GLUTEN FEED 20%

Feed Ingredient

Also known as: Corn Gluten Feed

Physical Form: Golden brown to dark brown (meal or pellets)

Description: Maize Gluten Feed is a by-product from the manufacture of Maize Starch and Maize syrup and is a medium protein feed and contains the same total digestible nutrients level as Barley. Protein rapidly degraded in ruminants.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	8.5	14.5	11	Yes
Fat (EE)	1.9	5.7	3.2	Yes
Fat (AH)	6.2	9.1	7	Yes
Protein	18	24	21	Yes
Crude Fibre	6	8.5	7	Yes
Ash	1.3	8.1	6	Yes
Starch	13	21	16	Yes
Total Sugars	1	4.5	2.5	Yes
NDF	26	48	45	Yes
ADF	16	24	18	*
NCGD	52	74	55	Yes

* Contact Aunir or your Head Office for application availability

CORN GLUTEN FEED 60%

Feed Ingredient

Also known as: Corn Gluten Meal (Prairie), 60% corn meal and 45% corn meal

Physical Form: Bright golden yellow meal

Description: Maize Gluten Feed is a by-product from the manufacture of Maize Starch and Maize syrup. Very high protein supplement for live stock, poultry and pets.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	5	13	10	Yes
Fat (EE)	1	3	2.5	Yes
Fat (AH)	3	4	3.5	Yes
Protein	43	63	60	Yes
Crude Fibre	0.5	7	1	Yes
Ash	1	5	2.5	Yes
Starch	10	18	14	Yes
Total Sugars	*	*	*	*
NDF	5	13	12.5	Yes
ADF	4	6.5	6.2	*
NCGD	87	95	87.5	Yes

* Contact Aunir or your Head Office for application availability

COTTON EXTRACT

Feed, Ingredient

Physical Form: Light Brown Meal

Description: Cottonseed extract is the byproduct remaining after cotton is ginned and the seeds crushed and the oil extracted. The remaining meal is usually used for animal feed.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	7	10.5	8.2	Yes
Fat (EE)	3.1	8	7.8	Yes
Fat (AH)	3.8	8.3	8.2	Yes
Protein	41	45.8	45	Yes
Crude Fibre	6.6	11.9	7.8	Yes
Ash	4.6	7.6	5.4	Yes
Starch	1	2.7	1.5	Yes
Total Sugars	3.3	4.3	3.6	Yes
NDF	17	28	25.7	Yes
ADF	16.1	19	17.4	*
NCGD	72	89	84	*

* Contact Aunir or your Head Office for application availability

COTTON SEED EXPELLER

Feed, Ingredient

Also known as: Cotton Seed Cake

Physical Form: Light Brown Meal

Description: Cottonseed meal is the byproduct remaining after cotton is ginned and the seeds crushed and the oil extracted. The remaining meal is usually used for animal feed.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	7	10.2	8.4	Yes
Fat (EE)	1.3	3.6	2.4	Yes
Fat (AH)	1.5	3.8	2.5	Yes
Protein	46.1	50.3	47	Yes
Crude Fibre	7.3	10.2	8.9	Yes
Ash	4.9	7	5.6	Yes
Starch	1	3.2	2.9	Yes
Total Sugars	0.9	3.4	2.95	Yes
NDF	17	28.1	26.4	Yes
ADF	11.1	14.6	13.5	*
NCGD	72	83	82	*

* Contact Aunir or your Head Office for application availability

CRAB

Feed Ingredient

Also known as: Crab Meal

Physical Form: Brown Meal

Description: Crab shells are high in chitin, which is a nitrogen containing compound that has a structure similar to cellulose, but is not digested by cellulase. Considerable variation exists between crab meals. Crab meal contains carotenoid pigments, which when fed w

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	5	10	8.5	Yes
Fat (EE)	1.7	2.4	1.9	Yes
Fat (AH)	1.9	2.3	2.1	Yes
Protein	30.2	41.4	36.8	Yes
Crude Fibre	10.2	10.7	10.5	Yes
Ash	31	45.6	36.8	Yes
Starch	*	*	*	*
Total Sugars	*	*	*	*
NDF	*	*	*	*
ADF	*	*	*	*
NCGD	*	*	*	*

* Contact Aunir or your Head Office for application availability

DISTILLERY HIGH PROTEIN

Feed Ingredient

Also known as: Dark Grains (Maize, Wheat, Barley and Sorghum)

Physical Form: Wet or Dry mash

Description: The by-product of the malt whisky and brewing industry. Distiller grains are a good source of protein and other nutrients for ruminant diets.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	8	10.5	8.5	Yes
Fat (EE)	3.5	6	5	Yes
Fat (AH)	4.5	7.5	6	Yes
Protein	20	30	25	Yes
Crude Fibre	8.5	13.5	11	Yes
Ash	3.5	5.5	4.3	Yes
Starch	3	6	4	Yes
Total Sugars	1	3	2	Yes
NDF	30	55	48	Yes
ADF	14	19.1	15.5	*
NCGD	45	70	52	Yes

* Contact Aunir or your Head Office for application availability

DISTILLERY LOW PROTEIN

Feed, Ingredient

Also known as: Distiller's spent grain, Distiller's grain

Physical Form: Wet or dry mash

Description: Distiller's spent grain, or draff, is not as palatable as brewer's spent grain, but it contains more crude protein and less fibre. It can be fed fresh, ensiled or dried by the same method and in the same quantities as brewer's grain. The inclusion of 3-7% in chick diets has in some cases increased growth. The by-products from grain distilleries vary in chemical composition according to the

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	7.2	13.9	9.8	Yes
Fat (EE)	1.3	8.3	5.26	Yes
Fat (AH)	2.3	10	7.05	Yes
Protein	10	20	19.6	Yes
Crude Fibre	2	16	9.1	Yes
Ash	1.3	7.2	6.14	Yes
Starch	2	50.4	9.1	Yes
Total Sugars	*	*	*	*
NDF	*	*	*	*
ADF	*	*	*	*
NCGD	*	*	*	*

* Contact Aunir or your Head Office for application availability

DRIED WHEY

Feed and Food Ingredient

Also known as: Whey Powder

Physical Form: White Powder

Description: Whey is the by-product in the manufacturing of cheese and casein. Disposing of this whey has long been a problem. Converting whey into powder has led to a number of products that it can be incorporated into. It is also feasible to use it as animal feed. Betw

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	4.4	9.2	5	Yes
Fat (EE)	0.4	1.3	0.9	Yes
Fat (AH)	0.5	1.2	0.9	Yes
Protein	11.9	13.3	12.5	Yes
Crude Fibre	*	*	*	*
Ash	8.2	9.7	8.7	Yes
Starch	*	*	*	*
Total Sugars	65	79	68.5	Yes
NDF	*	*	*	*
ADF	*	*	*	*
NCGD	*	*	*	*

* Contact Aunir or your Head Office for application availability

FEATHER MEAL

Feed Ingredient

Physical Form: Light Brown Meal

Description: Feather meal is the dried and ground waste from the poultry processing industry.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	6.5	9.8	7.2	Yes
Fat (EE)	2.5	13.1	5	Yes
Fat (AH)	2.8	12.5	7	Yes
Protein	56.8	86.6	86	Yes
Crude Fibre	0.2	1.5	0.9	Yes
Ash	1.8	4.9	3.3	Yes
Starch	*	*	*	*
Total Sugars	*	*	*	*
NDF	*	*	*	*
ADF	*	*	*	*
NCGD	*	*	*	*

* Contact Aunir or your Head Office for application availability

FISH MEAL

Feed Ingredient

Also known as: Icelandic Capelin, Norwegian Herring, South American White Fish, Chilean and Peruvian meal.

Physical Form: Light to dark brown

Description: Produced from a variety of species similar to and including Salmon, Tuna, Herring, Sprat, Blue Whiting, Anchovy. Major suppliers are in the UK, Iceland, Denmark, Chile, Peru and Norway. Fish meal is a high energy, very high protein material.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	5	15	9	Yes
Fat (EE)	4	12	9.3	Yes
Fat (AH)	4.5	12.5	9.5	Yes
Protein	55	75	65	Yes
Crude Fibre	*	*	*	*
Ash	6	18	15	Yes
Starch	*	*	*	*
Total Sugars	*	*	*	*
NDF	*	*	*	*
ADF	*	*	*	*
NCGD	*	*	*	*

* Contact Aunir or your Head Office for application availability

FULL CREAM MILK POWDER

Feed and Food Ingredient

Also known as: Whole Milk Powder

Physical Form: White Powder

Description: Milk used in the production of milk powders is first clarified, standardized and then given a heat treatment. This heat treatment is usually more severe than that required for pasteurization. Homogenization may be applied to decrease the free fat content.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	4.2	5	4.5	Yes
Fat (EE)	20.4	27.3	26	Yes
Fat (AH)	24	28.2	26.5	Yes
Protein	23.6	27.3	25.5	Yes
Crude Fibre	*	*	*	*
Ash	4.9	7	5.8	Yes
Starch	*	*	*	*
Total Sugars	38.4	40	39.5	Yes
NDF	*	*	*	*
ADF	*	*	*	*
NCGD	*	*	*	*

* Contact Aunir or your Head Office for application availability

FULL FAT SOYA

Feed and Food Ingredient

Also known as: De-Hulled Beans, Soy

Physical Form: Fine golden yellow powder

Description: A high oil meal produced by extrusion, expansion or micronization to reduce the content of the anti-nutritive factors.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	9	12.5	9.6	Yes
Fat (EE)	16	19	18.8	Yes
Fat (AH)	17.5	20	19	Yes
Protein	34	38	37.2	Yes
Crude Fibre	5	8	6.3	Yes
Ash	4	5	4.8	Yes
Starch	2.5	7.5	6	Yes
Total Sugars	5.5	8.5	7	Yes
NDF	8	12	10	Yes
ADF	5.5	7	6.5	*
NCGD	88	92	90	Yes

* Contact Aunir or your Head Office for application availability

GRAIN SCREENINGS

Feed Ingredient

Also known as: Seed Screenings

Physical Form: Usually small light brown pellets

Description: This product obtained from the initial cleaning of the incoming cereal consists of weak seeds and undersized grains. It is usually finely ground and mixed with other seed offals rather than used separately.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	8.8	11.5	10	Yes
Fat (EE)	3.7	4.6	4	Yes
Fat (AH)	4.1	4.8	4.4	Yes
Protein	11.7	12.8	12.2	Yes
Crude Fibre	11.1	13.5	12.9	Yes
Ash	5.4	8.8	6.4	Yes
Starch	*	*	*	*
Total Sugars	*	*	*	*
NDF	*	*	*	*
ADF	12.5	14.8	14.4	Yes
NCGD	*	*	*	*

* Contact Aunir or your Head Office for application availability

GRASS MEAL

Feed Ingredient

Also known as: Dried Forage category

Physical Form: Green dried grass (pellets or nuts)

Description: Grass meal is obtained by the high temperature drying of grass, usually Ryegrass. Good quality grass meal is a good source of energy and digestible fibre.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	6	8	7	Yes
Fat (EE)	2.5	3.5	3	Yes
Fat (AH)	3	4	3.5	Yes
Protein	10.5	18	16.5	Yes
Crude Fibre	18	25	22	Yes
Ash	5.5	10	8.2	Yes
Starch	*	*	*	*
Total Sugars	7	21	14	Yes
NDF	36	60	48	Yes
ADF	24	30	26	*
NCGD	40	64	52	Yes

* Contact Aunir or your Head Office for application availability

GROUNDNUT EXTRACT

Feed Ingredient

Physical Form: Grey/brown pellets

Description: A pelleted product from the production of groundnut oil. Processed Groundnut can be either a blend of expeller and extracted material or of extracted material only. Groundnut is a high (undegradable) protein source, very similar to soya, and high energymaterial, which is included into ruminant feeds only.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	4.3	11.9	9.1	Yes
Fat (EE)	4	12.4	4.4	Yes
Fat (AH)	5.5	8.5	7	Yes
Protein	45	52	49	Yes
Crude Fibre	6.6	14.6	11.5	Yes
Ash	4.5	8.5	6.5	Yes
Starch	5	7	6	Yes
Total Sugars	8	10	9	Yes
NDF	15	19	17	Yes
ADF	*	*	*	*
NCGD	81	85	83	Yes

* Contact Aunir or your Head Office for application availability

HOMINY

Feed Ingredients

Also known as: Maize Bran

Physical Form: Light Yellow Flakes

Description: This by-product of dry milling, consisting of the bran coating and the maize germ, is palatable to all classes of farm animals. It approaches maize grain in feeding value, but it contains more fat because the germ is included.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	9.5	10.56	10	Yes
Fat (EE)	2.3	2.7	2.5	Yes
Fat (AH)	2.3	2.5	2.5	Yes
Protein	11.23	11.7	11.4	Yes
Crude Fibre	6.7	7.5	6.9	Yes
Ash	2.9	3.2	3	Yes
Starch	35	36	35	Yes
Total Sugars	1.5	4.6	2.8	Yes
NDF	60.1	67.9	65	Yes
ADF	9.8	12.5	11	Yes
NCGD	32.1	39.9	35	Yes

* Contact Aunir or your Head Office for application availability

LINSEED EXPELLER

Feed Ingredient

Also known as: *Leinsaat-Expeller, Expulsion de graine de Lin, Mechanically extracted cake*

Physical Form: Large grey/brown cake slabs

Description: Linseed expeller is a popular, easily digestible, palatable feedstuff, particularly for dairy cattle, pigs, horses and young animals. Linseed cake is toxic to poultry except in very small proportions (under 3%). Larger amounts depress growth. The toxicity can largely be eliminated by soaking the meal in water for twenty-four hours or by adding pyridoxin

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	5.3	12.8	8.06	Yes
Fat (EE)	4	9.6	6	Yes
Fat (AH)	4.6	10	6.5	Yes
Protein	30	34.3	32	Yes
Crude Fibre	6.6	10.4	9.5	Yes
Ash	4.5	7.9	6	Yes
Starch	1.9	6.8	4.6	Yes
Total Sugars	2	4.5	3.8	Yes
NDF	17	25	21	Yes
ADF	11.5	15	13	*
NCGD	75	83	79	*

* Contact Aunir or your Head Office for application availability

LINSEED EXTRACT

Feed Ingredient

Also known as: Flax

Physical Form: Medium dark brown pellets

Description: The by-product of oil manufacture obtained by extraction from seeds of the flax plant *Linum usitatissimum*. Linseed is grown in temperate areas of the world, and increasingly in the UK. Linseed is used as a protein supplement and a good Selenium.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	6.5	10	9	Yes
Fat (EE)	0.8	1.2	1	Yes
Fat (AH)	1.2	1.6	1.5	Yes
Protein	30	36	34	Yes
Crude Fibre	7	12	9.3	Yes
Ash	5	6	5.5	Yes
Starch	3	5	4	Yes
Total Sugars	4.5	7.5	6	Yes
NDF	18	24	22.7	Yes
ADF	14	20	17.3	*
NCGD	76	82	77.3	Yes

* Contact Aunir or your Head Office for application availability

LOCUST BEAN

Feed Ingredient

Also known as: Carob Bean

Physical Form: Brown shell and purple bean

Description: The beans are often ground together with the pod, high level of energy from the sugar, used as a natural sweetener. The seeds are extremely hard; unless ground before feeding they are not digestible.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	11	14.3	12.7	Yes
Fat (EE)	0.1	5	3.5	Yes
Fat (AH)	1.5	5	4.4	Yes
Protein	7.8	10.3	9	Yes
Crude Fibre	1.1	6.3	2.3	Yes
Ash	0.5	3.2	1.5	Yes
Starch	0.5	1.5	1	Yes
Total Sugars	40	50	45	Yes
NDF	17	25	21	Yes
ADF	*	*	*	*
NCGD	75	83	79	Yes

* Contact Aunir or your Head Office for application availability

LUPINS

Feed and Food Ingredient

Also known as: While Lupin, Belara, Kalya and Gungurru

Physical Form: Large narrow seed

Description: The energy and protein values are higher and the fibre content less than wheat and is commonly used in Pig feed.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	4	15	8	Yes
Fat (EE)	5	9	7	Yes
Fat (AH)	6	12	7.5	Yes
Protein	28	40	31	Yes
Crude Fibre	7	17	15	Yes
Ash	4	6	5	Yes
Starch	2	9	7.5	Yes
Total Sugars	2.5	7.5	5	*
NDF	17	24	20	*
ADF	*	*	*	*
NCGD	76	83	80	*

* Contact Aunir or your Head Office for application availability

MAIZE (CORN)

Feed and Food Ingredient

Also known as: Corn and Sweet Corn

Physical Form: Yellow to White tooth-shaped grain with a depression on one end.

Description: Maize is a high energy, low protein raw material with the majority of energy supplied in the form of Starch.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	8.5	14.5	12.5	Yes
Fat (EE)	1.1	4	2.8	Yes
Fat (AH)	3	5	4.2	Yes
Protein	7	10	8.5	Yes
Crude Fibre	1.1	4.3	2.4	Yes
Ash	0.8	2.9	1.4	Yes
Starch	56	66	59	Yes
Total Sugars	0.5	3.5	1.5	Yes
NDF	6	14	10	Yes
ADF	3	4.5	3.6	*
NCGD	86	94	90	Yes

* Contact Aunir or your Head Office for application availability

MAIZE GERM

Feed Ingredients

Physical Form: Light Yellow/Brown Flakes

Description: This is a valuable by-product being rich in oil. Its main value is in the oil which can be extracted or it can be used as animal feed without oil extraction.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	6.7	11	7.2	Yes
Fat (EE)	15.7	20.7	17.6	Yes
Fat (AH)	16	22.1	18.1	Yes
Protein	12	20.6	15.5	Yes
Crude Fibre	3.2	10	8.8	Yes
Ash	4.5	6.9	5.5	Yes
Starch	20	35	34	Yes
Total Sugars	2.8	5.1	4.5	Yes
NDF	80.2	82	81.5	Yes
ADF	6	14	7.8	Yes
NCGD	18	19.8	18.5	Yes

* Contact Aunir or your Head Office for application availability

MAIZE GERM MEAL

Feed and Food Ingredient

Also known as: Corn germ meal

Physical Form: Golden brown meal

Description: A co-product of the wet-milling of maize containing both maize germ and maize bran but known as Maize Germ meal. This is a co-product of the production of starch for use in the food and paper/corrugating industries; of glucose syrups and caramel production. Maize germ is an attractive raw material for pig and poultry feeds and an ideal raw material for high density ruminant

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	5.8	14.5	11	Yes
Fat (EE)	3	9	6.5	Yes
Fat (AH)	5	10	7.5	Yes
Protein	18	22	20	Yes
Crude Fibre	4.5	13.5	7	Yes
Ash	2	6	3.4	Yes
Starch	17	43	28	Yes
Total Sugars	1	3	2	Yes
NDF	14	30	22	Yes
ADF	*	*	*	*
NCGD	70	86	78	Yes

* Contact Aunir or your Head Office for application availability

MAIZE MEAL

Feed Ingredients

Physical Form: Light Yellow Meal

Description: Maize meal is made in many different grades depending on market requirements. It can be made as a straight run product up to an extraction determined by the maximum fat content allowed or as part of a divide when other lower fat products are taken off.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	12.8	14	13	Yes
Fat (EE)	2.9	4	3.3	Yes
Fat (AH)	3	3.8	3.5	Yes
Protein	7.3	9.1	7.5	Yes
Crude Fibre	4.1	10	7.9	Yes
Ash	1.4	1.9	1.7	Yes
Starch	48.5	53	51.3	Yes
Total Sugars	0.2	1.1	0.5	Yes
NDF	76.5	80.2	78.2	Yes
ADF	8	9.2	8.5	Yes
NCGD	19.8	23.5	21.8	Yes

* Contact Aunir or your Head Office for application availability

MALT RESIDUE

Feed Ingredients

Also known as: Malt Sprouts, Malt Culms

Physical Form: Brown or brown/grey grains

Description: Malt culms or sprouts are obtained from malted Barley by the removal of the sprouts which may include some of the malt hulls. The fibres of malt culms, being highly digestible, are a useful feed. Their value is greater for ruminants than for monogastric animals because only about half of the crude protein is digestible true protein.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	6	12	9	Yes
Fat (EE)	0.5	2	1.4	Yes
Fat (AH)	2	3	2.3	Yes
Protein	17	28	26	Yes
Crude Fibre	10	24	20	Yes
Ash	3	10	7.2	Yes
Starch	12.6	16	14	Yes
Total Sugars	7	10	8.5	Yes
NDF	35	45	43.2	Yes
ADF	14	18	16.9	*
NCGD	55	65	56.8	Yes

* Contact Aunir or your Head Office for application availability

MEAT & BONE MEAL

Feed Ingredient

Also known as: Meat meal & MBM

Physical Form: Dark brown meal

Description: Meat and Bone meal is dried and rendered from mammal tissues and does not contain any blood meal or poultry by-products, mainly fed as a protein source in dog food and cat food.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	6	10	7.5	Yes
Fat (EE)	8	10	9.5	Yes
Fat (AH)	8.5	11.5	11	Yes
Protein	34	65	53.5	Yes
Crude Fibre	*	*	*	*
Ash	12	20	19	Yes
Starch	*	*	*	*
Total Sugars	*	*	*	*
NDF	*	*	*	*
ADF	*	*	*	*
NCGD	*	*	*	*

* Contact Aunir or your Head Office for application availability

OAT FEED

Feed Ingredient

Also known as: Oat meal by-product, Oat groats, Oat bran and Oat Hulls

Physical Form: Light grey or yellow meal or pellet

Description: The by-product of the production of oatmeal for human consumption; oatfeed is a fibrous meal the composition of which varies according to the amount of hulls, flour and screen dust included. Oatfeed is a palatable, high fibre material. It is valuable in feeds requiring a high level of NDF.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	5	11	10	Yes
Fat (EE)	2.6	3.8	3	Yes
Fat (AH)	3	4	3.5	Yes
Protein	1.8	8.1	4.5	Yes
Crude Fibre	20	36	25	Yes
Ash	2.9	4	3.5	Yes
Starch	9	13	11	Yes
Total Sugars	0.5	3	2	Yes
NDF	60	70	65	Yes
ADF	36	39	37.8	*
NCGD	30	40	35	Yes

* Contact Aunir or your Head Office for application availability

OAT FLOUR

Feed and Food Ingredient

Also known as: Avena

Physical Form: Golden grain, Flour is slightly yellow

Description: There are several different species, with the common spring or white oat (*A. sativa* L.) being the most important cultivated form. *A. byzantina* is a red-oat type adapted to warmer climates where it is grown as a winter oat. An oat spikelet consists of oat kernels. Each kernel is enclosed by a hull (made up of two layers - a lemma and palea) which is only loosely attached to the groat.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	6.5	10.4	7.8	Yes
Fat (EE)	5.7	9.6	7.5	Yes
Fat (AH)	8.8	9.6	9.2	Yes
Protein	9.5	12.3	11.3	Yes
Crude Fibre	1.2	6.2	4.2	Yes
Ash	1.6	2.6	2.19	Yes
Starch	45.4	59.9	50.2	Yes
Total Sugars	*	*	*	*
NDF	*	*	*	*
ADF	*	*	*	*
NCGD	*	*	*	*

* Contact Aunir or your Head Office for application availability

OATS

Feed and Food Ingredient

Also known as: Rolled Oat

Physical Form: Golden grain is elongated with one end flattened slightly and a definite fibrous coat.

Description: Oats are a very palatable and are usually fed rolled or ground for maximum utilisation.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	9	17	11.7	Yes
Fat (EE)	4	8.5	6	Yes
Fat (AH)	5	9	7.9	Yes
Protein	7	13	11	Yes
Crude Fibre	3	11	10	Yes
Ash	1.6	3.5	2.6	Yes
Starch	35	45	40	Yes
Total Sugars	0.5	1.5	1	*
NDF	22	32	28.5	Yes
ADF	13	15.4	14.2	*
NCGD	84.6	87	85.8	Yes

* Contact Aunir or your Head Office for application availability

PALM KERNEL HIGH OIL

Feed Ingredient

Also known as: Palm Kernel cake (PKC)

Physical Form: Light or dark brown flakes

Description: The by-product of the production of two different oils, palm oil and palm kernel oil, used for soap and food manufacture from the African Oil Palm (*Eleais guineensis*). Palm oil is recovered from the outer, fleshy skin of the palm fruit. Palm Kernel oil is removed separately from the kernels by hydraulic press after the nuts have been split. The protein content is medium and of good quality.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	7	12	10	Yes
Fat (EE)	7	13.6	9.9	Yes
Fat (AH)	7.5	14.1	10.2	Yes
Protein	13.8	20	16.8	Yes
Crude Fibre	13	24	17	Yes
Ash	3.9	5.3	4.4	Yes
Starch	0.5	2.5	1	*
Total Sugars	0.5	2.5	1.5	*
NDF	57	67	64	Yes
ADF	39	44	41.8	*
NCGD	33	43	36	Yes

* Contact Aunir or your Head Office for application availability

PALM KERNEL LOW OIL

Feed Ingredient

Also known as: Palm Kernel cake (PKC)

Physical Form: Light or dark brown flakes

Description: The by-product of the production of two different oils, palm oil and palm kernel oil, used for soap and food manufacture from the African Oil Palm (*Eleais guineensis*). Palm oil is recovered from the outer, fleshy skin of the palm fruit. Palm Kernel oil is removed separately from the kernels by Hexane extraction after the nuts have been split. The protein content is medium and of good quality

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	9	11	9	Yes
Fat (EE)	0.9	2.9	1.8	Yes
Fat (AH)	1.2	3.4	2.1	Yes
Protein	13.8	20.5	17.3	Yes
Crude Fibre	13	25	18	Yes
Ash	3.9	5.3	4.4	Yes
Starch	0.5	2.5	1	*
Total Sugars	0.5	2.5	1.5	*
NDF	70	75	73	Yes
ADF	40	46	43	*
NCGD	25	30	27	Yes

* Contact Aunir or your Head Office for application availability

PEAS

Feed and Food Ingredient

Also known as: Field Peas

Physical Form: Dried Peas are round in shape and after drying become wrinkled. Various shades of green and brown.

Description: Peas are a rich source of starch, sugar and protein for all species.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	9	16	12.3	Yes
Fat (EE)	0.8	1.6	1.3	Yes
Fat (AH)	1	2	1.5	Yes
Protein	18	31	23	Yes
Crude Fibre	4	11	5.5	Yes
Ash	2.8	4.8	3.3	Yes
Starch	41	46	45	Yes
Total Sugars	3.5	5.5	4.5	Yes
NDF	10	18	16.6	Yes
ADF	7	9.5	8.2	*
NCGD	82	90	83.4	Yes

* Contact Aunir or your Head Office for application availability

POTATO PRODUCTS

Feed and Food Ingredient

Physical Form: Whole Tubas, Dried Flakes or Dehydrated Powder

Description: Derived from the roots of the potato containing mostly starch. A product that is harvested processed and supplied as chips or slices. Particularly usefull in dairy feeds to maximise milk protein yeilds.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	6.9	12	12	Yes
Fat (EE)	0.26	0.56	0.3	Yes
Fat (AH)	0.26	0.56	0.3	Yes
Protein	7.3	8.6	7.4	Yes
Crude Fibre	2	2.8	2.7	Yes
Ash	3	4.2	3.9	Yes
Starch	63	70.7	64.5	Yes
Total Sugars	3	3.5	3.3	Yes
NDF	*	*	*	*
ADF	*	*	*	*
NCGD	*	*	*	*

* Contact Aunir or your Head Office for application availability

POULTRY BY-PRODUCTS

Feed Ingredient

Also known as: Poultry Meal

Physical Form: Light Brown Meal

Description: Poultry by-products meal consists of the ground, rendered, clean parts of the carcass of slaughtered poultry, such as necks, feet, undeveloped eggs, and intestines, birds that are condemned for human consumption, exclusive of feathers, except in such amounts as may occur unavoidably in good processing practice.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	6	10	6.8	Yes
Fat (EE)	13.1	31.3	20	Yes
Fat (AH)	14.5	25.6	20.5	Yes
Protein	49.2	66.5	65.2	Yes
Crude Fibre	1.3	2.3	1.5	Yes
Ash	6.6	16.7	15	Yes
Starch	*	*	*	*
Total Sugars	*	*	*	*
NDF	*	*	*	*
ADF	*	*	*	*
NCGD	*	*	*	*

* Contact Aunir or your Head Office for application availability

RAPE MEAL EXTRACT

Feed Ingredient

Also known as: Oil Seed Rape, Rape, Rappa, Rappa Seed and Canola

Physical Form: Dark brown and yellow meal

Description: Rapeseed is rolled, then cooked at temperatures between 90°C and 105°C. This destroys myrosinase, the enzyme responsible for producing the harmful hydrolysis products of glucosinolates. The cooked seed is passed through a screw press, removing the majority of the oil. The remainder is extracted with solvents. After desolventization the meal is dried, cooled and then

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	9	14	12	Yes
Fat (EE)	2.5	3.5	3.2	Yes
Fat (AH)	2	5	3.5	Yes
Protein	34	39	38.5	Yes
Crude Fibre	10	13	11.4	Yes
Ash	5.5	7.5	6.8	Yes
Starch	4	7	5	Yes
Total Sugars	8	10.5	9	Yes
NDF	24	38	36.5	Yes
ADF	*	*	*	*
NCGD	62	76	63.5	Yes

* Contact Aunir or your Head Office for application availability

RAPE SEED EXPELLER

Feed Ingredient

Also known as: Oil Seed Rape, Rape, Rappa, Rappa Seed and Canola

Physical Form: Dark brown and yellow meal

Description: A by-product of oil manufacture obtained by hydraulic press of rapeseed. A high oil, high ruminant energy and protein material which is used in ruminant and pig feeds.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	5	10	8	Yes
Fat (EE)	9	12	10.5	Yes
Fat (AH)	11	15	13	Yes
Protein	29	34	30	Yes
Crude Fibre	9	13	11	Yes
Ash	5.5	6.5	6	Yes
Starch	3.5	6.5	4	Yes
Total Sugars	7	9	8	Yes
NDF	16	24	20	Yes
ADF	*	*	*	*
NCGD	76	84	80	*

* Contact Aunir or your Head Office for application availability

RAPE-PULSE MIX

Feed Ingredient

Also known as: Vegtein, Extrupro

Physical Form: Dark green meal mixture

Description: 50:50 blend of full fat Rape Seed (Canola) and dried legumes. An excellent, high oil, high energy and protein material ideal for use in all species of ruminants.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	8	12	10	Yes
Fat (EE)	19	23	21	Yes
Fat (AH)	20	24	22	Yes
Protein	20	24	22	Yes
Crude Fibre	10	14	12	Yes
Ash	3	4	3.5	Yes
Starch	15	21	18	Yes
Total Sugars	2	8	5	Yes
NDF	10	20	15	*
ADF	*	*	*	*
NCGD	*	*	*	*

* Contact Aunir or your Head Office for application availability

RED WHEAT

Feed Ingredient

Physical Form: Golden Brown Kernels

Description: Red Wheat is Hard Wheat, which is valued for its exceptional bread-making qualities.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	8.9	17	13	Yes
Fat (EE)	1.3	2.5	1.7	Yes
Fat (AH)	1.8	3.2	3	Yes
Protein	6.8	17.5	12.5	Yes
Crude Fibre	2.5	6.4	4	Yes
Ash	1.6	2.5	2	Yes
Starch	54	64	58	Yes
Total Sugars	2.5	5	3.5	Yes
NDF	8	16	9.5	Yes
ADF	3	5.5	3.5	*
NCGD	94.5	97	96.5	*

* Contact Aunir or your Head Office for application availability

RICE

Feed, Food and industrial ingredient

Also known as: Basmati, Brown, long grain, paddy rice amongst many others

Physical Form: White/brown short to long grains

Description: The starch seed of a semi aquatic grass (Oryza Sativa).

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	12	13.7	13	Yes
Fat (EE)	1.5	2.3	1.8	Yes
Fat (AH)	2.3	3.1	2.6	Yes
Protein	8.8	11.2	9.8	Yes
Crude Fibre	7.2	10.4	9	Yes
Ash	2.9	5.2	5	Yes
Starch	64	73	68	Yes
Total Sugars	*	*	*	*
NDF	*	*	*	*
ADF	*	*	*	*
NCGD	*	*	*	*

* Contact Aunir or your Head Office for application availability

RICE BRAN EXTRACT

Feed, Food and industrial ingredient

Also known as: Basmati, Brown, long grain, paddy rice amongst many others

Physical Form: White/brown short to long grains

Description: Rice bran is a by-product of the rice milling process (the conversion of brown rice to white rice). Rice bran contains a high level of dietary fibers (beta-glucan, pectin, and gum). The high oil content of bran makes it subject to rancidification, one of the reasons that is often separated from the grain before storage or further processing. The bran itself can be heat-treated to increase its

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	12	13.7	13	Yes
Fat (EE)	1.5	2.3	1.8	Yes
Fat (AH)	2.3	3.1	2.6	Yes
Protein	8.8	11.2	9.8	Yes
Crude Fibre	10	15	13	Yes
Ash	5	7	6	Yes
Starch	64	73	68	Yes
Total Sugars	*	*	*	*
NDF	*	*	*	*
ADF	*	*	*	*
NCGD	*	*	*	*

* Contact Aunir or your Head Office for application availability

RICE BRAN HIGH OIL

Feed, Food and industrial ingredient

Also known as: Basmati, Brown, long grain, paddy rice amongst many others

Physical Form: White/brown short to long grains

Description: The co-product of the milling of rice for human consumption.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	9.5	10.5	10.5	Yes
Fat (EE)	14	19	16.5	Yes
Fat (AH)	15	20	17.5	Yes
Protein	13.5	16.5	15	Yes
Crude Fibre	5	8	6.5	Yes
Ash	5	11	8	Yes
Starch	18	28	23	Yes
Total Sugars	0.5	5.5	3	Yes
NDF	12	18	15	Yes
ADF	*	*	*	*
NCGD	*	*	*	*

* Contact Aunir or your Head Office for application availability

RYE

Feed and Food Ingredient

Also known as: SA Rye, Cereal Rye or Rye corn.

Physical Form: Rye grain is smaller and darker than Wheat, harder to mill and produces a low percentage of flour.

Description: Rye is a winter/spring cereal similar to Wheat, Oats and Barley and is mainly ground in southern Australia for the milling industry for the manufacture of crisp breads.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	9	14	12	Yes
Fat (EE)	1	1.8	1.5	Yes
Fat (AH)	1.3	2.1	1.8	Yes
Protein	9.5	12.1	11.3	Yes
Crude Fibre	1.7	3	2.1	Yes
Ash	1.5	3	1.6	Yes
Starch	50	54	52.4	Yes
Total Sugars	3	6	4.6	*
NDF	11	14	11.5	Yes
ADF	3.6	8	3.8	*
NCGD	86	89	88.5	Yes

* Contact Aunir or your Head Office for application availability

SESAME EXPELLER

Feed, Ingredient

Also known as: Sesame Cake

Physical Form: Dark Brown Meal

Description: After extraction of the oil from the seeds, the resulting oilcake is a valuable high-protein feed. The oilcake is palatable to all classes of livestock. Sesame meal is frequently used as the principal protein in both growing and fattening rations for swine, constituting up to 30% when 5% of the ration is a lysine-rich ingredient, such as meat meal. As sesame cake is rich in methionine and

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	8	11	9.5	Yes
Fat (EE)	7	10.8	10	Yes
Fat (AH)	7.6	11.5	10.6	Yes
Protein	38.2	46.1	40.2	Yes
Crude Fibre	5.4	8	6.2	Yes
Ash	10	13.3	11	Yes
Starch	1	1.5	1.5	Yes
Total Sugars	0.9	2.8	2.3	Yes
NDF	17	19.5	17.8	Yes
ADF	10.5	16	12.8	*
NCGD	80	83	82	*

* Contact Aunir or your Head Office for application availability

SESAME MEAL EXTRACT

Feed, Ingredient

Physical Form: Brown Meal

Description: After extraction of the oil from the seeds, the resulting oilcake is a valuable high-protein feed. The oilcake is palatable to all classes of livestock. Sesame meal is frequently used as the principal protein in both growing and fattening rations for swine, constituting up to 30% when 5% of the ration is a lysine-rich ingredient, such as meat meal. As sesame cake is rich in methionine and

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	6	10	7.8	Yes
Fat (EE)	0.9	2.3	2.1	Yes
Fat (AH)	1.2	2.8	2.4	Yes
Protein	43.2	49.1	44.8	Yes
Crude Fibre	6	9	6.5	Yes
Ash	9	13.8	10.4	Yes
Starch	1.7	4.5	1.85	Yes
Total Sugars	3.4	3.8	17.2	Yes
NDF	17	19.5	17.8	Yes
ADF	11.5	15.7	12	*
NCGD	81	84	82	*

* Contact Aunir or your Head Office for application availability

SHEA NUT MEAL

Feed Ingredient

Also known as: Kotschy Meal

Physical Form: Brown Meal

Description: Shea nut meal is an agro-industrial by-product obtained from the processing of the nuts of the shea tree for fat. The fat is extracted from the nuts in one of two ways: the industrial method produces expeller meals, while a local method of water-extraction is also practised. The meal is now receiving increased attention as a potential feed ingredient for poultry due to the increased amounts

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	5.4	9.3	7	Yes
Fat (EE)	14.5	37.9	22.3	Yes
Fat (AH)	14.7	38.1	24	Yes
Protein	10.8	14.3	12.1	Yes
Crude Fibre	*	*	*	*
Ash	5	7.5	5.8	Yes
Starch	*	*	*	*
Total Sugars	*	*	*	*
NDF	*	*	*	*
ADF	*	*	*	*
NCGD	*	*	*	*

* Contact Aunir or your Head Office for application availability

SHRIMP

Feed Ingredient

Also known as: Shrimp Meal

Physical Form: Light Pink/Brown Flakes

Description: Shrimp meal can be made from either cull shrimp that are being processed before freezing or from whole shrimp that is not of suitable quality for human consumption. The material to be made into shrimp meal is dried (sun or using a dryer) and then ground. Shrimp meal has been used in trout and salmon diets as a source of pigments to impart the desirable color in the tissues.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	9.8	13.3	10.2	Yes
Fat (EE)	1.2	3.9	3.2	Yes
Fat (AH)	1.4	3.8	3	Yes
Protein	31.8	50	46.2	Yes
Crude Fibre	1.9	14.1	4.5	Yes
Ash	22.3	26.8	24.1	Yes
Starch	*	*	*	*
Total Sugars	*	*	*	*
NDF	*	*	*	*
ADF	*	*	*	*
NCGD	*	*	*	*

* Contact Aunir or your Head Office for application availability

SKIMMED MILK POWDER

Feed and Food Ingredient

Also known as: Milk Powder

Physical Form: White Powder

Description: Milk used in the production of milk powders is first clarified, standardized and then given a heat treatment. This heat treatment is usually more severe than that required for pasteurization. Homogenization may be applied to decrease the free fat content. Spray drying is the most used method for producing milk powders. Skimmed milk powder contains 0.05 – 0.10% milkfat.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	3.5	5	4.8	Yes
Fat (EE)	0.2	2.9	0.9	Yes
Fat (AH)	0.3	1.4	1	Yes
Protein	31.6	35.1	34.2	Yes
Crude Fibre	*	*	*	*
Ash	7.4	8.1	7.8	Yes
Starch	*	*	*	*
Total Sugars	45.5	51.5	47.9	Yes
NDF	*	*	*	*
ADF	*	*	*	*
NCGD	*	*	*	*

* Contact Aunir or your Head Office for application availability

SORGHUM

Feed and Food Ingredient

Also known as: Moench

Physical Form: Small oval shaped grains

Description: Sorghum is a tropical cereal grass which is similar to Rice & Maize and has a extensive root system, waxy leaves and with stands very arid conditions. Sorghum grains have a similar structure to that of Maize although they are smaller and oval in shape. Used in the manufacture of rice type products, breads, pancakes, dumplings and Couscous.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	10	13	12	Yes
Fat (EE)	1.7	3.8	3	Yes
Fat (AH)	2	4.2	3.2	Yes
Protein	6.8	9.4	9	Yes
Crude Fibre	2.4	2.9	2.7	Yes
Ash	1.4	2.9	1.6	*
Starch	60	70	65	*
Total Sugars	*	*	*	*
NDF	*	*	*	*
ADF	*	*	*	*
NCGD	*	*	*	*

* Contact Aunir or your Head Office for application availability

SOYA HULLS

Feed Ingredients

Also known as: Soybean Mill Run

Physical Form: Golden brown fibrous flakes

Description: Soybean hulls are a by-product of soybean processing for oil and meal production. Soybean hulls have urease activity, which can be a problem in rations containing urea. Heat treatment destroys the urease activity. Soybean hulls which have been heat treated are referred to as soybean mill run.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	8	12.4	9.5	Yes
Fat (EE)	1.3	3.6	2	Yes
Fat (AH)	1.4	3.5	2	Yes
Protein	11.1	15.8	12.3	Yes
Crude Fibre	29	36.4	31.5	Yes
Ash	4.5	5.7	4.8	Yes
Starch	5	6.8	5.4	Yes
Total Sugars	1.3	2.3	1.6	Yes
NDF	57.3	61.4	58	Yes
ADF	42	46.9	42.5	*
NCGD	40	43	41.5	Yes

* Contact Aunir or your Head Office for application availability

SOYA MEAL EXTRACT

Feed and Food Ingredient

Also known as: HiPro, Soya 44, Soya 48 & Soya 50. Also applicable to Soyapass.

Physical Form: Yellow to brown meal

Description: Soybean meal is the product remaining after extracting most of the oil from whole soybeans. The oil may be removed by solvent extraction or by an expeller process in which the beans are heated and squeezed. HiPro does not have any added hulls. INGOT calibrations cover both north and south American soya bean meal.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	9	14	11.8	Yes
Fat (EE)	0.9	2.6	2	Yes
Fat (AH)	1.3	3	2.5	Yes
Protein	45.8	52	48	Yes
Crude Fibre	3.3	6.3	4.8	Yes
Ash	5.5	9.7	7.4	Yes
Starch	2	6	3	Yes
Total Sugars	8	12.3	8.9	Yes
NDF	7.5	13.3	8.5	Yes
ADF	4.7	8.2	5.5	*
NCGD	86.7	92.5	91.5	Yes

* Contact Aunir or your Head Office for application availability

SOYABEAN EXPELLER

Feed, Ingredient

Also known as: Soya Cake

Physical Form: Yellow to golden brown meal

Description: Soya expeller is the product remaining after extracting most of the oil from whole soybeans. The oil may be removed by an expeller process in which the beans are heated and squeezed.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	10	15.1	11.8	Yes
Fat (EE)	3.5	7	3.9	Yes
Fat (AH)	4.1	7.2	4.3	Yes
Protein	41	49.1	42.5	Yes
Crude Fibre	3	6.4	4.6	Yes
Ash	5	7.7	5.6	Yes
Starch	7	7.4	7	Yes
Total Sugars	9.8	10.9	10.5	Yes
NDF	8.2	15.4	9.5	Yes
ADF	5.4	7.8	6	*
NCGD	85	92	90.8	*

* Contact Aunir or your Head Office for application availability

SUGAR BEET

Feed Ingredient

Also known as: SB Pulps, Molassed Pulp, Beetpulp with Molasses

Physical Form: As Large Pellets Pencils or Shreds

Description: On arrival at a sugar factory the beet is sampled, cleaned, sliced and then processed, after which Pressed Pulp is produced. This either leaves the factory to be fed to livestock or beet molasses is added to it. The combination of Pressed Pulp and beetmolasses is dried to produce Molassed Sugar Beet Feeds. Suitable for a range of stock - dairy cows, beef cattle, sheep, pigs,

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	9	14	10	Yes
Fat (EE)	0.5	1.6	0.8	Yes
Fat (AH)	0.5	1.8	1	Yes
Protein	6.5	9.7	8.8	Yes
Crude Fibre	17	21.3	18	Yes
Ash	3.8	6.7	5.8	Yes
Starch	0.2	1.5(6.0)	1.0(5.7)	Yes
Total Sugars	4.0(18.0)	7.0(25.0)	6.6(20.6)	Yes
NDF	37	49	40	Yes
ADF	21	30	23	*
NCGD	51	63	60	*

* Contact Aunir or your Head Office for application availability
Numbers in brackets are for molassed beet.

SUNFLOWER EXTRACT

Feed Ingredient

Also known as: Partly Decorticated, Decorticated and Non Decorticated

Physical Form: Dark grey - brown - off white meal which is sometimes pelleted.

Description: The by-product of sunflower oil production which has high digestible fibres and prone to have wide variation of hulls.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	9.5	14	12	Yes
Fat (EE)	1	2	1.8	Yes
Fat (AH)	1.5	3.5	2.5	Yes
Protein	26	37	30	Yes
Crude Fibre	20	24	23	Yes
Ash	5	8	6	Yes
Starch	1.5	5	3.8	*
Total Sugars	4	6.5	5	*
NDF	35	45	40	Yes
ADF	28	32	29	*
NCGD	*	*	*	*

* Contact Aunir or your Head Office for application availability

SUNFLOWER SEEDS

Feed and Food Ingredient

Also known as: Common sunflower, Kansas sunflower, mirasol; Helianthus comes from the Greek helios anthos.

Physical Form: Decorticated (shelled) whole Sunflower seeds of various colours.

Description: Sunflower seeds were and still are eaten raw, roasted, cooked, dried, and ground, and used as a source of oil.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	1.7	7	5	Yes**
Fat (EE)	25	49	44	Yes
Fat (AH)	30	55	48	Yes
Protein	16	28	16	Yes
Crude Fibre	*	*	*	*
Ash	2.7	3.8	3.1	*
Starch	1	2	1.6	*
Total Sugars	2.5	6.5	2.5	*
NDF	16.6	35	28	*
ADF	6.6	26	22	*
NCGD	*	*	*	*

* Contact Aunir or your Head Office for application availability

TRITICALE

Feed, Food & Chemical

Physical Form: Very small plump grains

Description: Triticale is mostly grown in Eastern Europe, Germany, China and Mexico for feed and food applications.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	9	13.2	12.5	Yes
Fat (EE)	1.4	1.9	1.8	Yes
Fat (AH)	1.7	2.1	2	Yes
Protein	10.4	12.5	10.8	Yes
Crude Fibre	1.9	4	3.5	Yes
Ash	1.8	2.5	2.1	Yes
Starch	44	58	56	Yes
Total Sugars	2.5	5	4.4	*
NDF	10	19.5	11.7	Yes
ADF	3	4.4	3.5	*
NCGD	80.5	90	88.3	*

* Contact Aunir or your Head Office for application availability

WHEAT

Feed, Food and Chemical

Also known as: Feed Wheat

Physical Form: Yellow-Brown grains

Description: Wheat is a winter/spring cereal similar to Rye, Oats and Barley and is ground in most countries and is predominantly used by the Flour and Feed industries.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	8.9	17	13	Yes
Fat (EE)	1.3	2.5	1.7	Yes
Fat (AH)	1.8	3.2	3	Yes
Protein	6.8	15	12.5	Yes
Crude Fibre	2.5	6.4	4	Yes
Ash	1.6	2.5	2	Yes
Starch	54	64	58	Yes
Total Sugars	2.5	5	3.5	Yes
NDF	8	16	9.5	Yes
ADF	3	5.5	3.5	*
NCGD	94.5	97	96.5	*

* Contact Aunir or your Head Office for application availability

WHEATFEED MIDDLING

Feed Ingredient

Also known as: *Wheat Bran, Pollards, and includes wheat gluten feed*

Physical Form: Broken wheat grains, pellet or flaked

Description: This mixture of shorts and germ is the most common by-product of flour mills. If the proportion of ingredients is retained, middlings are often called mill-run or wheat pollard. Both shorts and middlings can be used for all classes of livestock. They are common - often up to 40% - in concentrates for cattle. Some middlings can be advantageously included in feed for layers, but

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	8.9	17	13	Yes
Fat (EE)	1.3	5.2	3.4	Yes
Fat (AH)	2	6	4.2	Yes
Protein	13	17	15	Yes
Crude Fibre	7	11	9.5	Yes
Ash	3	6	4.5	Yes
Starch	15	38	25	Yes
Total Sugars	2.5	5	3.5	Yes
NDF	30	36	33	Yes
ADF	3	5.5	3.5	*
NCGD	64	70	67	Yes

* Contact Aunir or your Head Office for application availability

WHOLE LINSEED

Feed Ingredient

Also known as: Flax seed

Physical Form: Whole flat tear shaped seed

Description: Linseed is harvested and the seed released from the seed boll.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	21	26	24	Yes
Fat (EE)	35	39	38	Yes
Fat (AH)	38	42	41	Yes
Protein	21	26	24	Yes
Crude Fibre	6	9	8	Yes
Ash	3	4	3.4	Yes
Starch	3	5	4	Yes
Total Sugars	4.5	7.5	6	Yes
NDF	*	*	*	*
ADF	*	*	*	*
NCGD	*	*	*	*

* Contact Aunir or your Head Office for application availability

WHOLE RAPE

Feed, Food and Chemical

Also known as: Oil Seed Rape, Rape, Rappa, Rappa Seed and Canola

Physical Form: Small brown/black seeds

Description: A high oil, high energy and protein material ideal for use in all species of ruminants. Rapeseed is also used as a cooking oil, industrial lubricant and an ingredient of bio-diesels

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	4	8	6.5	Yes
Fat (EE)	37	43	40	Yes
Fat (AH)	37	47	44	Yes
Protein	16.5	24	21	Yes
Crude Fibre	6	10	8	Yes
Ash	3	5	4	Yes
Starch	0.5	1.5	1	Yes
Total Sugars	3	7	5	Yes
NDF	10	20	15	Yes
ADF	*	*	*	*
NCGD	*	*	*	*

* Contact Aunir or your Head Office for application availability

WHOLE SOYABEAN

Feed and Food Ingredient

Physical Form: Yellow to golden brown whole bean

Description: Soybeans are a versatile crop with many uses. But before they can be used in food, feed or industrial products, soybeans must be processed. More than 95 percent of the soybeans processed by solvent-extraction plants. When arriving at the processing plant, the soybeans are checked for quality. The soybeans then are processed to extract the oil and meal.

Properties and Ranges:

Property	Min %	Max %	Typical Values %	INGOT Availability
Moisture	9	12.5	9.6	Yes
Fat (EE)	16	19	18.8	Yes
Fat (AH)	17.5	20	19	Yes
Protein	34	38	37.2	Yes
Crude Fibre	5	8	6.3	Yes
Ash	4	5	4.8	Yes
Starch	2.5	7.5	6	Yes
Total Sugars	5.5	8.5	7	Yes
NDF	8	12	10	Yes
ADF	5.5	7	6.5	*
NCGD	88	92	90	Yes

* Contact Aunir or your Head Office for application availability