



A RICH SOURCE OF PROTEIN

ecoMass®

ONE AND ONLY PROTEIN FEED RAW MATERIAL IN TÜRKİYE

ecoMass® ANALYSIS VALUES

| | | | |
|-------------|--------------|----------------|--------|
| Raw Protein | 52,0% | Sodium(Na) | 0,68% |
| Dry Matter | 94,0% | Starch | 9,0% |
| Raw Ash | 9,0% | Raw Cellulose | 4,60% |
| Raw Fat | 1,1% | Total Sugar | 2,55% |
| Density | 0,5/cm3 | NDF | 18,45% |
| ME (cattle) | 3162 kcal/kg | ADF | 5,87% |
| NE-L | 1846 kcal/kg | Lignin | 1,27% |
| NE-G | 1944 kcal/kg | Total Phosphor | 0,47% |
| TDN | 82,0% | Magnesium (Mg) | 0,29% |
| RDP | 41,74 g/100g | Potassium (K) | 1,01% |
| RUP | 10,26 g/100g | | |



52% and 55%
raw protein
types
available!

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One and only
protein feed
raw material
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52% and 55%
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ecoMass® is a complex of protein hydrolysates and bioactive ingredients produced by structural transformation of cell proteins of yeast by high and simple nitrogenous compounds.



GMP + FSA Assured

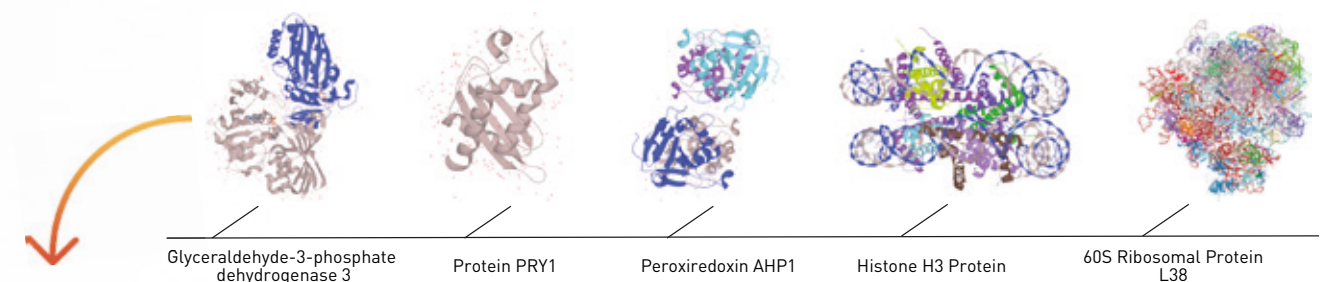
Manufactured at our factory whose quality management system is certified for
ISO 9001, ISO 14001, ISO 45001, ISO 22000 and HACCP standards.

The patented process of Integro Gida is used for production.

1

Process Inputs = 691 peptides and polypeptides

In the patented process of Integra Gida, the metabolites released into the environment during yeast fermentation (1), nitrogenous compounds (2) and rapidly digestible carbohydrates (3) are subjected to further processing and undergo various reactions. The compounds that make up the main body of the 691 peptides and polypeptides being subject to these reactions are shown below:



2

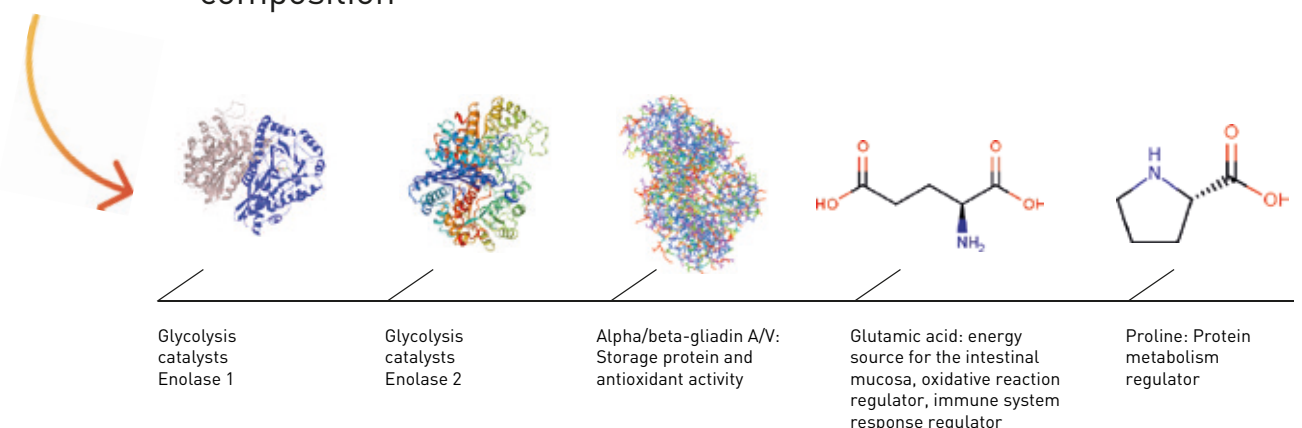
Process

- Molecular interactions and reactions
- Denaturation
- Depolymerization
- Aggregation
- Removal of impurities
- Simplification in peptide composition

3

Process outputs = 254 peptides

A peptide composition is newly formed or it's purity is improved at the end of the process, which can be used by rumen microorganisms with maximum efficiency.



ecoMass® is a raw material that improves the structure of protein by using a patented production process and turns it into a highly bioavailable structural protein

RESULTS – Selected Proteins

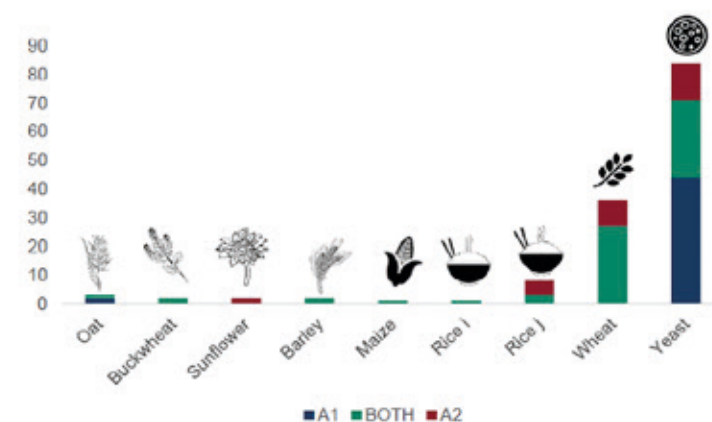
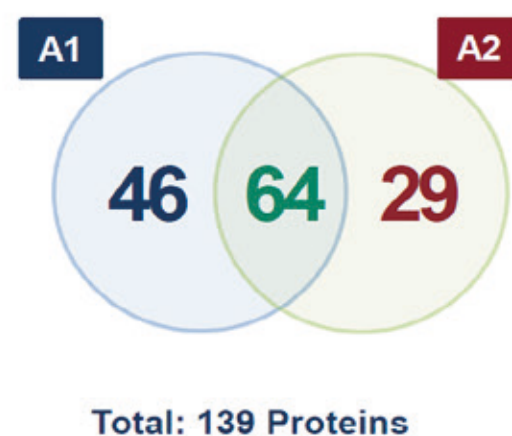
FAU
FRIEDRICH-ALEXANDER
UNIVERSITÄT
ERLANGEN-NÜRNBERG

A1 8 Different species
110 Proteins
430 peptide sequences

A2 9 Different species
93 Proteins
377 peptide sequences

Green plants: 39 proteins
Yeast: 71 proteins

Green plants: 53 proteins
Yeast: 40 proteins



A1: Final product *ecoMass®* developed by using the patented process of Integro.

A2: Non-processed *ecoMass®* in wet state, the first input of the production process.

The graphic given above shows the nitrogenous compounds used as the first input in **A2** passes through the patented process of Integro to bind to cell proteins of yeast and plant proteins and to ensure **ecoMass®** to turn into a structural protein.

As the graphic shows, **65% and 35% of ecoMass® is yeast protein and plant protein respectively.**



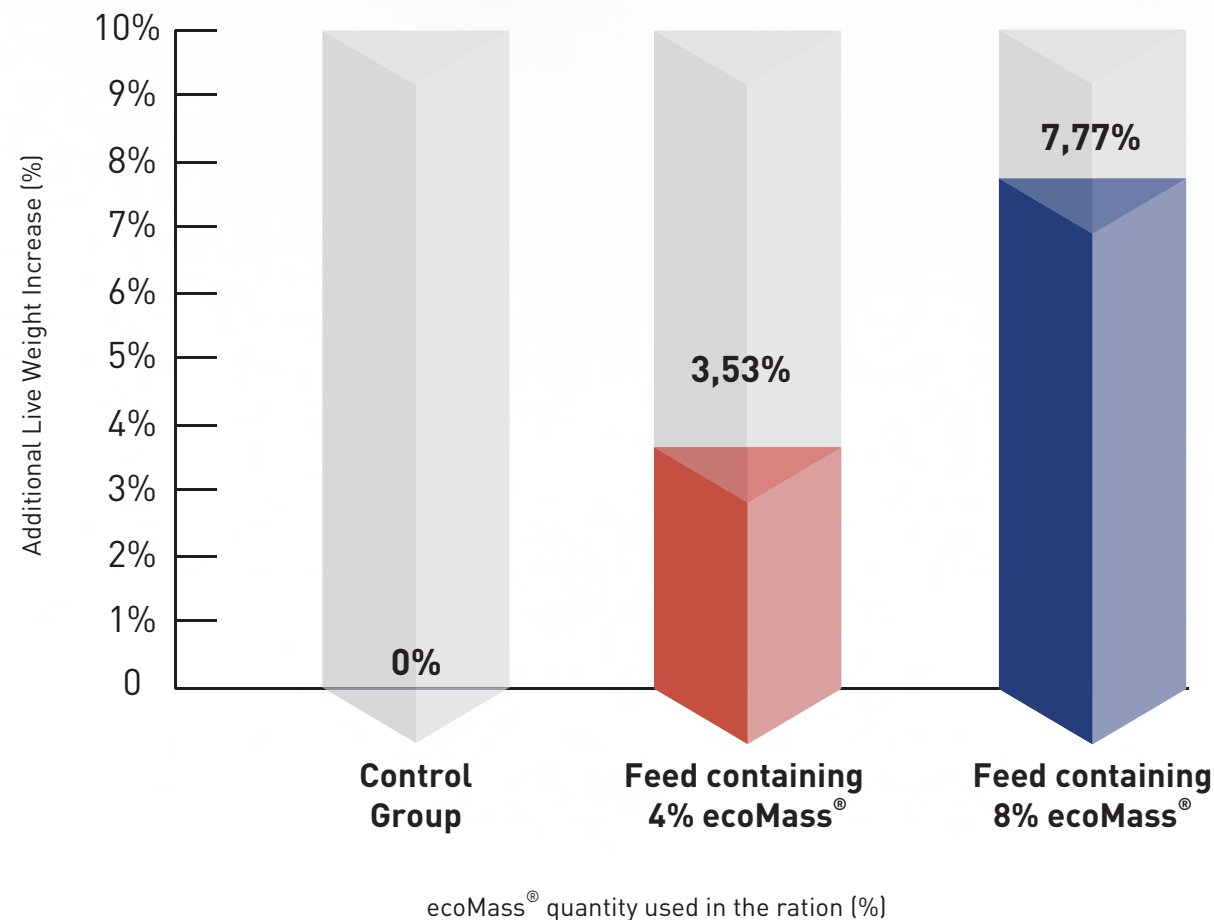


Productivity and Saving Together

ecoMass® is an excellent source of protein, feed containing ecoMass® is easily digested by animals, protects their health and increases their productivity.

Farms using feed produced with ecoMass® enjoys notable increase of productivity.*

Live weight increase enabled by ecoMass® supplemented cattle feed compared to ordinary feeds.



- It is a protein feed raw material with high bioefficacy. Feed containing ecoMass® is more usefully digested by livestock.
- It is tasty and appetizing, increasing the dry matter intake.
- It is an excellent source of protein, 52% and 55% raw protein types are available.
- It saves on ration costs.
- Its price is lower than imported protein sources.
- It is recommended for use as a raw material in blended feeds for ruminants up to 8%
- It is an industrial raw material produced throughout the year, so that feed factories do not have to stock it.
- The binding function of its pellets prevents powdering.
- Shelf life:** 24 months (suitable for feed factories having storage facilities)
- Weight and packaging:** 50 kg sack, big bag or bulk

It has been determined that the blood urea nitrogen level, which is known to have a direct impact on reproduction, yield, product quality, and health in dairy cattle, is lower in animals fed with ecoMass® - supplemented feeds compared to those fed with standard feeds.

This has been observed as **another indicator of the high protein bioavailability of ecoMass®**

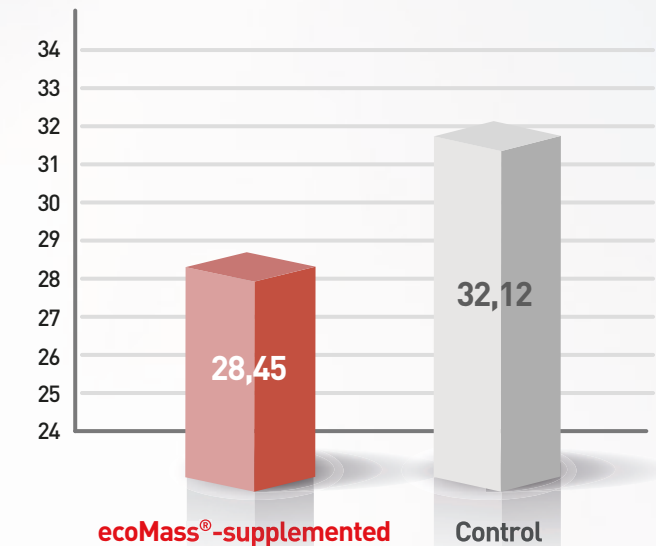
Blood urea nitrogen (mg/dL)

ecoMass® - supplemented

28,45

Control

32,12



Control groups: Blood urea nitrogen level of cattle fed with find ordinary feed: 32.12
Blood urea nitrogen level of cattle fed with feed containing ecoMass®: 28.45

**Study of possibilities to use dried yeast remnants (ecoMass®) as animal feed*