

**HASILMATIK®**

# DETAILED SYSTEM PRESENTATION

Advantages and Technical Details of  
The HASILMATIK®™ Fodder Production System



# Introduction of **HASILMATİK®™**

- ▶ **HASILMATİK®** systems are specially developed for fresh green fodder with high nutrition value and low cost from cool season cereal seeds by using hydroponic agricultural technology.
- ▶ It has an evenly distributed, planned fresh green fodder production system.
- ▶ The system was introduced into the Turkish Market in 2009 by **Ekohasil**. Original Australian technology was developed upon 9 months of R&D in collaboration with universities.
- ▶ **HASILMATİK®** complies with CE and has ISO 9001 certification. **HASILMATİK®™** and relevant updated technology is patented and registered by **Ekohasil A.Ş.**

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# HASILMATİK®™ Introduction



## THE PRODUCT

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# AGRI ECOHASIL CORE OBJECTIVES

FOR THE DEVELOPMENT AND PRODUCTION OF **HASILMATİK®**

## Animal Welfare

- Through supplying the animal with most of its nutritional needs in a simple ration
- Hygienic production conditions free of aflatoxins, mold

## Reliability

- in feed quality, producing the same quality of fodder all year through
- Simple, Low Maintenance Operation

## Sustainability

- in all year through feed capacity, the same quantity of fodder all year through

## Economy

- in increasing high quality milk production with a cost reduction advantage

## Innovation

- in adding present day technology into traditional soil free fodder farming.
- ECOLOGICAL Lean Concept with low power and water consumption

# HASILMATİK<sup>®</sup>™ PROVIDES ANIMAL WELFARE



- ▶ Provides suitable sprouts for natural metabolism of the farm animals with high in energy and smooth digestibility (barley sprouts has 98% digestibility)
- ▶ Fodders are free of contamination and abundantly contains vitamins (A, E, B9, B10), biotin and natural enzymes
- ▶ Provides better health conditions and reproduction performances.
- ▶ Fresh green FODDER produced with HASILMATİK<sup>®</sup>™ has;
  - ▶ Up-to 95-97% digestibility,
  - ▶ 20-22% digestible protein,
  - ▶ 18-20% Dry matter,
  - ▶ 2700-2900 MCal energy value,
  - ▶ An increase of 600% in vitamins A, E, Beta Carotene,
  - ▶ Folic Acid Mineral and amino acid increase,
  - ▶ Starch value is very low

have been proven and scientifically reported by research done at universities abroad and domestically.

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# HASILMATİK® PROVIDES SUSTAINABILITY

- ▶ Grows fresh green fodder for 365 days regardless of the climate conditions.
- ▶ Uses just %2 of the water of conventional fodder farming



# HASILMATİK<sup>®</sup>™ PROVIDES RELIABILITY

- ▶ The System is equipped with sufficient spare capacity and components to ensure «stoppage free operation»
- ▶ Can farm 350 kg to 10000 kg fresh green fodder daily according to system model and capacity.



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# HASILMATİK<sup>®</sup>™ PROVIDES ECONOMY

## COST ANALYSIS FOR ROUGHAGE FEEDS ON THE BASE OF DRYMATTER AND DIGESTIBILITY

	PROCUREMENT COST			
Silage	75,84	EUR/Ton	0,08	EUR/Kg
Clover Feed	197,25	EUR/Ton	0,20	EUR/Kg
Hay	182,08	EUR/Ton	0,18	EUR/Kg
Hasilmatik	30,82	EUR/Ton	0,03	EUR/Kg

RATED DRYMATTER	DRYMATTER	COST ON DRYMATTER BASIS			
%28-%33	31%	249	EUR/Ton	0,25	EUR/Kg
%80-%85	83%	238	EUR/Ton	0,24	EUR/Kg
%90-%95	93%	196	EUR/Ton	0,20	EUR/Kg
%18-%20	19%	162	EUR/Ton	0,16	EUR/Kg

DIGESTIBILITY	COST BASED ON DIGESTIBLE DRYMATTER			
50%	497	EUR/Ton	0,50	EUR/Kg
70%	340	EUR/Ton	0,34	EUR/Kg
60%	326	EUR/Ton	0,33	EUR/Kg
95%	171	EUR/Ton	0,17	EUR/Kg

PRODUCTION COST OF HASILMATİK				
Barley Seeds	197,25	EUR/Ton	0,20	EUR/Kg
Labour, Power & Water (25%)	49	EUR/Ton	0,05	EUR/Kg
<b>Raw Materials and Labour Total</b>	<b>247</b>	<b>EUR/Ton</b>	<b>0,25</b>	<b>EUR/Kg</b>
Hasilmatik Production Yield	13% (1 to 8)			
<b>Cost of Hasilmatik</b>	<b>31</b>	<b>EUR/Ton</b>	<b>0,03</b>	<b>EUR/Kg</b>

**IMPORTANT NOTE:** Although the comparison is made on a "Dry Matter" and "Digestible Dry Matter" basis, please note that Hasilmatik benefits should not only be evaluated by dry matter as it has higher benefits as feed based on its high "Energy Value", "Protein Content", minerals and vitamins.

\* Note: The above study is based on Turkish supply prices

- ▶ Provides minimum 7-9 kg green sprouts from 1 kg barley in 7 days...
- ▶ Increases the yield of milk and meat. Proved by scientific results. (10% more milk production and about 14% more milk fat production compared to conventional feeding)

# HASILMATİK®™ PROVIDES ECONOMY

Product	Seed (g)	Grass Weight (g)	Dry Matter (%)	Raw Ash
Malt Barley	1.100	11.250	15-22	3,9
Corn Silage			23,5	3,7

Scientific analysis was carried out by Prof.Dr. Harun Baytekin of Çanakkale 18 Mart University, Faculty of Agriculture

Product	Raw Fat	Digestible Protein	Raw Cellulose	ADF	NDF	ADL	NFE	ME Value/Kg
Malt Barley	4	17,9 - 23	2	18	36	3,6	13	12
Corn Silage	2,5	9,7	6,6	38,9	54,1	6,2	15,2	7,5

- ▶ Provides minimum 7-9 kg green sprouts from 1 kg barley in 7 days...
- ▶ Increases the yield of milk and meat. Proved by scientific results. (10% more milk production and about 14% more milk fat production compared to conventional feeding)

# HASILMATİK<sup>®</sup>™ PROVIDES ECONOMY

- ▶ Better meat production (20% more daily live weight gain compared to feeding)
- ▶ Creates approximately 50% decrease in total feed cost, avoids feed waste
- ▶ Uses less energy and needs less workmanship
- ▶ Pays back in 13-15 months by efficient use



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# HASILMATİK<sup>®</sup>™ PROVIDES TECHNOLOGICAL INNOVATION

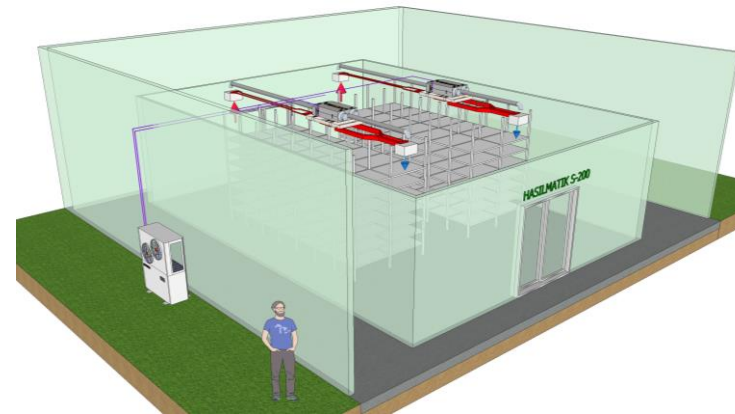
- ▶ Innovation in adding present day technology into traditional soil free fodder farming

TRADITIONAL



TO

TECHNOLOGICAL



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# HASILMATİK®™ Introduction



## DESIGN DETAILS

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**HASILMATİK®**

# HASILMATİK®™ Introduction

## DESIGN DETAILS - TYPES AND SPECIFICATIONS



### ANNEX 2 - TECHNICAL SPECIFICATION SHEET FOR HASILMATİK®™ SYSTEMS



Specifications	S-200	S-400	S-600	S-900	S-1200	S-1600	S-2200	S-3200	S-3600
Production Capacity (kg/day)	750-800	1.000-1.100	1.500-1.100	2.000-2.100	3.000-3.100	4000-4200	6000-6200	8000-8200	10.000-10200
Number of Trays	196	392	588	882	1.176	1.568	2.156	3.234	3.528
Harvested Trays Per Day	28	56	84	126	168	224	308	462	504
Harvested Porsion ( Trays x 3)	84	168	252	378	504	672	924	1.368	1.512
The total interior dimensions, WxLxH in meters	7,30x10x2,8	8x16x2,8	7,5x20,7x2,8	10x23x2,8	10x29x2,8	10,0x23x2,8x2 Units	10x29x2,8x 2 Units	10x29x2,8x 3 Units	10x30x2,8 x 3 Units
Size of Concrete Base and Roof Minimum Height WxLxH <sub>minimum</sub> in meters *1	8x12x4	8,5x20x4	8,5x28x4	12x28x4	12x32x4	25,0x28x4 x2 Units	25x35x4x 2 Units	35x35x4x 3 Units	35x35x4 x 3 Units
Barley Seeds (kg/day)	100-120	150-160	300-350	360-400	450-500	660-650	850-900	1150-1300	1450-1800
Nr. of Dairy Cows Fed	40-50	70-80	90-100	140-150	200-250	200-220	300-370	400-420	500-550
Nr. of Sheep or Goat Fed	350-400	750-800	900-1000	1.300-1.400	2.000-2.200	2.600-2.800	3.500-4.000	4.500-5.000	6.500-7.000
Water Consumption (Lt/day) *2	800	1.660	2.000	3.200	5.000	6.500	10.000	14.000	17.000
Installed Power (kW) *3	9,5	16,7	18,5	20,5	27,5	35,2	40,2	40,2	40,2

#### \*1 CONCRETE BASE AND ROOFING

- A C35 Grade Concrete Base is Required
- The concrete base surface for installation must be helicopter polished to retain an even surface preventing water acumulation for a hygenic surface
- The concrete base must have an inclination of 0,3% to avoid water acumulation on the floor to sustain hygenic conditions
- The roof must have a minimum clearance distance of 4 meters from concrete base level

#### \*2 WATER QUALITY

- The water fed into the system must be continuous, must be free of salt, lime, grit, grime, particles and algae
- The feed water temperature must be maximum 23°C and minimum 17°C. Please ensure that the water lines are sufficiently insulated and if necessary provide a water heater/cooler to the feed of our system

#### \*3 POWER REQUIREMENTS

- The Installed Power Requirement is shown on the table above for each individual System Type
- The supply connection must me 380V 3 Phase
- Each phase must be balanced and phase voltages must be within ±5 V. If there is unbalance in phase voltage more than mentioned a transformer unit must be installed to feed our system

# HASILMATİK®™ Introduction

## DESIGN DETAILS



- ▶ Fully Anodized Hygenic Alluminium Frame System Integrated with Fully Automatic Irrigation And Illumination System

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# HASILMATİK<sup>®</sup>™ Introduction

## DESIGN DETAILS



- Fresh Green Fodder Production in a Fully Hygienic Process Room. The System Works on a 7 Day FIFO (First in First Out) Basis preventing any chance of failure in timely harvest

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# HASILMATİK<sup>®</sup>™ Introduction

## DESIGN DETAILS



- ▶ Fresh Green Fodder Production Using Hygienic Tray Systems. The trays are specially designed for long life usage and easy harvesting by portioning tray contents

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# HASILMATİK®™ Introduction

## DESIGN DETAILS



- ▶ Fully Automatic Foton Illumination System

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# HASILMATİK®™ Introduction

## DESIGN DETAILS



- ▶ Individually sized «Double Channel» System providing Extra Operational Security for Sustainable Production

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# HASILMATİK<sup>®</sup>™ Introduction

## DESIGN DETAILS



- ▶ Individually sized «Double Channel» System providing Extra Operational Security for Sustainable Production

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# HASILMATİK<sup>®</sup>™ Introduction

## DESIGN DETAILS



- ▶ Carefully designed Process Room airflow management

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# HASILMATİK<sup>®</sup>™ Introduction

## DESIGN DETAILS



- ▶ Irrigation System with preconditioning tank and filters. Hydromat Control system providing high accuracy in irrigation

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# HASILMATİK<sup>®</sup>™ Introduction

## DESIGN DETAILS



- ▶ High Quality automatic irrigation control valves with manual option for operational safety and sustainability

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# HASILMATİK<sup>®</sup>™ Introduction

## DESIGN DETAILS – AUTOMATIC IRRIGATION SYSTEM

- ▶ Highly accurate automatic irrigation system providing very low water consumption



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# HASILMATİK®™ Introduction

## DESIGN DETAILS



- ▶ High Quality Process Room with «Easy Operation» insulated sliding doors

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# HASILMATİK®™ Introduction

- ▶ Hasilmatik®™ Is Designed for Sustainably and Profitably providing for your farming needs and is a patented design in 156 countries worldwide



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# HASILMATİK®™ Introduction



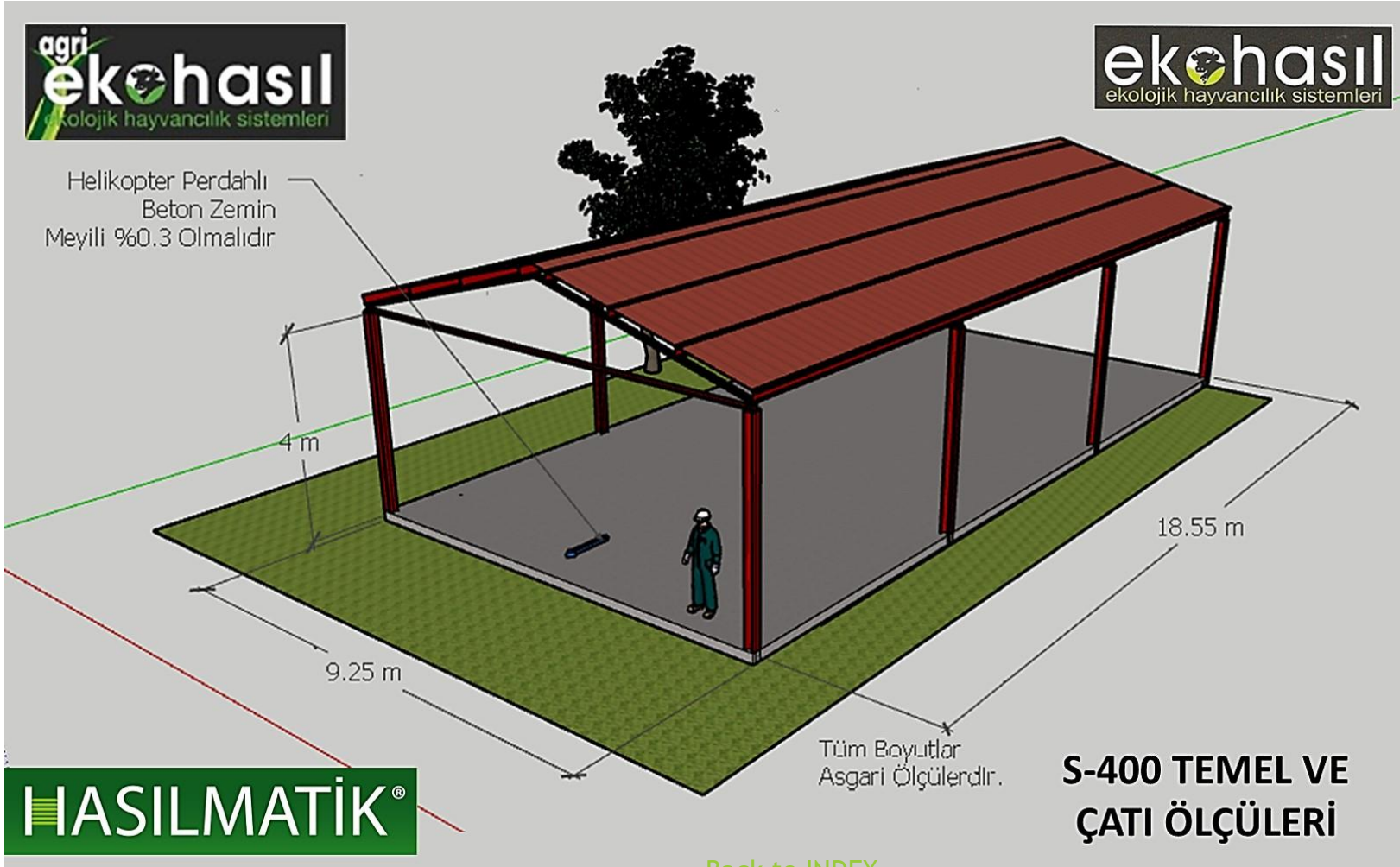
## INSTALLATION

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# HASILMATİK®™ Introduction

## FOUNDATION & ROOF



► Only a simple foundation and protective cover is required for installation

# HASILMATİK®™ Introduction

## GENERAL VIEW - Installed System



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# HASILMATİK®™ Introduction

## INSTALLATION – Process Room Installation



- ▶ 100 mm/80 mm Insulated Hygenic Panels

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# HASILMATİK®™ Introduction

## INSTALLATION – Process Room Installation





# HASILMATİK®™ Introduction

## INSTALLATION – Process Room Installation



# HASILMATİK®™ Introduction

## INSTALLATION – Mechanical Installation



# HASILMATİK®™ Introduction

## INSTALLATION – Mechanical Installation



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# HASILMATİK®™ Introduction

## INSTALLATION – Electrical Installation



- ▶ All electrical lines are laid externally

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# HASILMATİK®™ Introduction

## INSTALLATION



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## SEWING SEEDS

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## SEWING PROCESS – Washing Seeds



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## SEWING PROCESS





# HASILMATİK®™ Introduction

## SEWING PROCESS



# GROWTH OF FODDER

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## GROWTH



# HASILMATİK<sup>®</sup>™ Introduction

## GROWTH



- ▶ Video Demonstrating Daily Growth

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# HASILMATİK®™ Introduction

GROWTH



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# HARVESTING HASILMATİK FODDER

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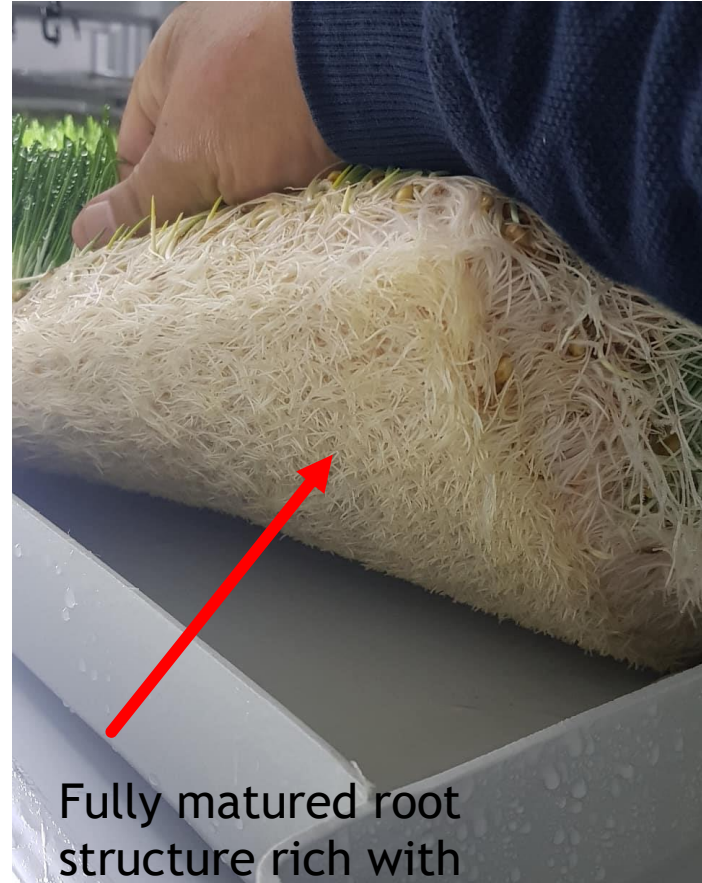
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# HASILMATİK<sup>®</sup>™ Introduction

## HARVEST



Barley Shoots rich with cellulose



Fully matured root structure rich with protein, energy, minerals and vitamins

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# HASILMATİK<sup>®</sup>™ Introduction

## HARVEST



- ▶ Barley Shoots with Fully matured root structure rich with protein, energy, minerals and vitamins

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# HASILMATİK<sup>®</sup>™ Introduction

## HARVEST



▶ 1 Kg Barley Seeds sewn  
Result in 7-9  
Kg of  
Hasilmatik  
Fodder  
depending on  
seed quality

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# HASILMATİK®™ Introduction



## FEEDING

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# HASILMATİK<sup>®</sup>™ Introduction

## FEEDING- MIXING

- ▶ A video of mixing Hasilmatik Fodder with other ration ingredients



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# HASILMATİK®™ FEEDING- MIXING

- ▶ A video of feeding the cattle



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# HASILMATİK®™ Introduction

## FEEDING



# HASILMATİK®™ Introduction

## FEEDING

### Video

- ▶ Cattle Love  
Hasilmatik Fodder
- ▶ They even fight for it  
😊



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# HASILMATİK®™ Introduction

## GENERAL VIEWS

HASILMATİK IS IN JAPAN!!!



# HASILMATİK®™ Introduction

## GENERAL VIEWS

HASILMATİK IS IN JAPAN!!!





# HASILMATİK®™ Introduction

GENERAL VIEWS



# HASILMATİK®™ Introduction

GENERAL VIEWS

## HASILMATİK IN JAPANESE RAIN FORESTS



# HASILMATİK®™ Introduction

## GENERAL VIEWS



# HASILMATİK®™ Introduction

## GENERAL VIEWS



# HASILMATİK®™ Introduction



# THANK YOU

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