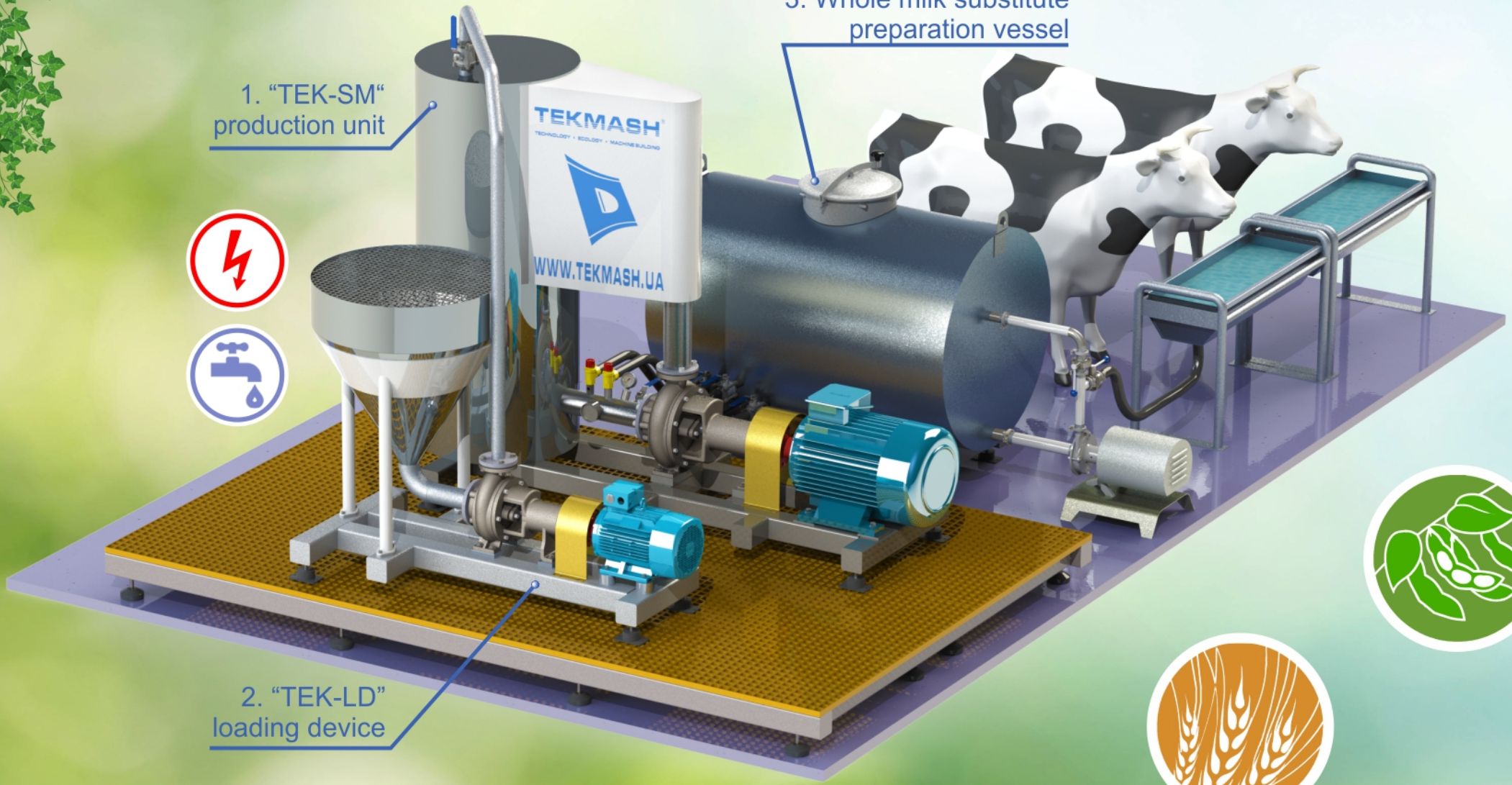
PRODUCTION LINE FOR MAKING WET FEED MIXTURES (WMS) USED IN ANIMAL HUSBANDRY



MAIN EQUIPMENT

FINE GRINDING, MIXING AND THERMAL PROCESSING

«1» HYDRODYNAMIC UNIT «TEK-SM»

The unit consists of a pump with an electric motor, a bunker for loading the components (soybeans, wheat, peas, barley or other leguminous plants, water, supplements) and a special device to perform the mixture grinding, homogenization and thermal processing up to the temperature which destroys antinutrient substances and pathogenic flora.

The safe level of tripsin inhibitor (up to zero level) is guaranteed.

TEK-SM UNIT SPECIFICATIONS

Parameter	TEK-1SM	TEK-2SM	TEK-3SM	TEK-4SM
Capacity (milk, paste), kg/h	70/210	100/300	160/500	330/1000
Processing temperature, ^{0}C	105..110			
Processing duration time, min	60			
Motor power, kW	11	15	22	45
Overall dimensions, mm	1840x570x1650	2070x660x1650	2140x900x1700	2450x960x2200
Weight, kg	480	500	620	960
Servicing staff, person	1		1-2	

The equipment is protected by Eurasian patents (9 countries), Canadian and USA patents on the technology and design.

"TEKMASH®" technology provides fine grinding, mixing and thermal processing of mixtures by means of hydrodynamics (science dealing with liquid movement) with no heating elements used. It permits making 5-6 l vegetable milk using not more than 0.25 kWh electric energy.

While dry feed assimilation does not exceed 55-60%, "TEKMASH®" feed mixtures are 65-85% assimilated. The equipment is repaid within 6 months time, which makes the livestock industry not subsidized but profitable.

Concentrated sterile paste-like supplements (based mainly on peas, soybeans, lupine) are produced using TEKMASH® technology which preserves all vitamins and minerals, as opposed to cake or soya meal which contain much less useful substances.

TEKMASH® TECHNOLOGY ENABLES:

- to increase 2-4-month old pigs daily gains by 10-15% (for example, from 450 g to 520 g) due to supplying their ration with 1-2 l vegetable milk;
- to increase cows milk yields by 1-3 l due to supplying their ration with 3-4 l vegetable milk;
- to save up to $25-40 on each 6-month old calf when using vegetable milk (mainly soy milk) instead of skim milk or whole milk substitutes (WMS);
- to increase fattening bull-calves daily gains by 150 – 200 g due to supplying their ration with 3-4 l of 10% vegetable milk;
- to increase farm profitability two or more times due to higher weight gains and reduced feed cost;
- to cut energy consumption 3-5 times while making wet feeds as compared to conventional technologies;
- to introduce necessary mineral, biologically active and pharmaceutical substances while making feeds.

AUXILIARY EQUIPMENT
FOR "TEK-SM" HYDRODYNAMIC UNIT

«2» "TEK-LD" LOADING DEVICE

THE DEVICE IS DESIGNED FOR:

- increasing hydrodynamic unit capacity by 30-40%;
- reducing manual labor share, thus cutting servicing staff from 2 to 1 person;
- making various feed compositions without stopping the equipment.

"TEK-LD" UNIT SPECIFICATIONS

Electric pump installed power, kW	5,5-7,5
Operation mode	batch
Feed volume, l, up to	100-400
Batch processing time, min, not more	2

OPERATING PRINCIPLE

- Dry mixture (according to the recipe) is placed into the receiving bunker, passing through the net to remove foreign objects.
- A certain amount of water or another liquid (for example, skim or substandard milk) is added.
- The raw stuff is soaked in the TEK-LD loading device simultaneously with feed preparation in TEK-SM unit.
- On completing the boiling process in TEK-SM, another portion of raw stuff is fed to the tank by the TEK-LD pump.

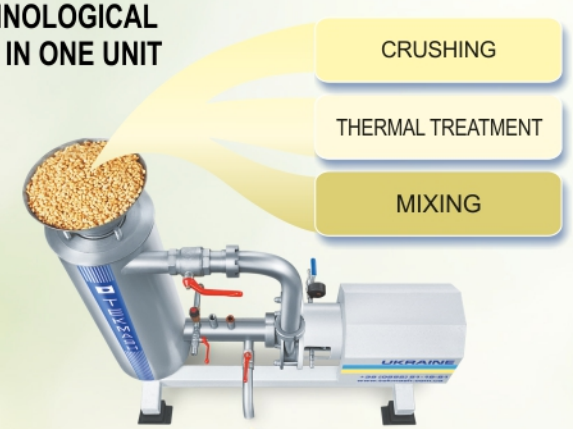
«3» WHOLE MILK SUBSTITUTE (WMS) PREPARATION VESSEL

RECOMMENDED PARAMETERS

Parameter	TEK-1SM	TEK-2SM	TEK-3SM	TEK-4SM
Vessel volume, l, more than	300	450	750	1500
Motor power, kW	0,55-1,5		1,5-2,2	
Pump capacity, m^3/h	6-10		10-30	

“TEKMASH®” LIQUID MIXED FEED PRODUCTION TECHNOLOGY

THREE TECHNOLOGICAL PROCESSES IN ONE UNIT



HOMOGENOUS PASTE
15 – 30% solids content

or

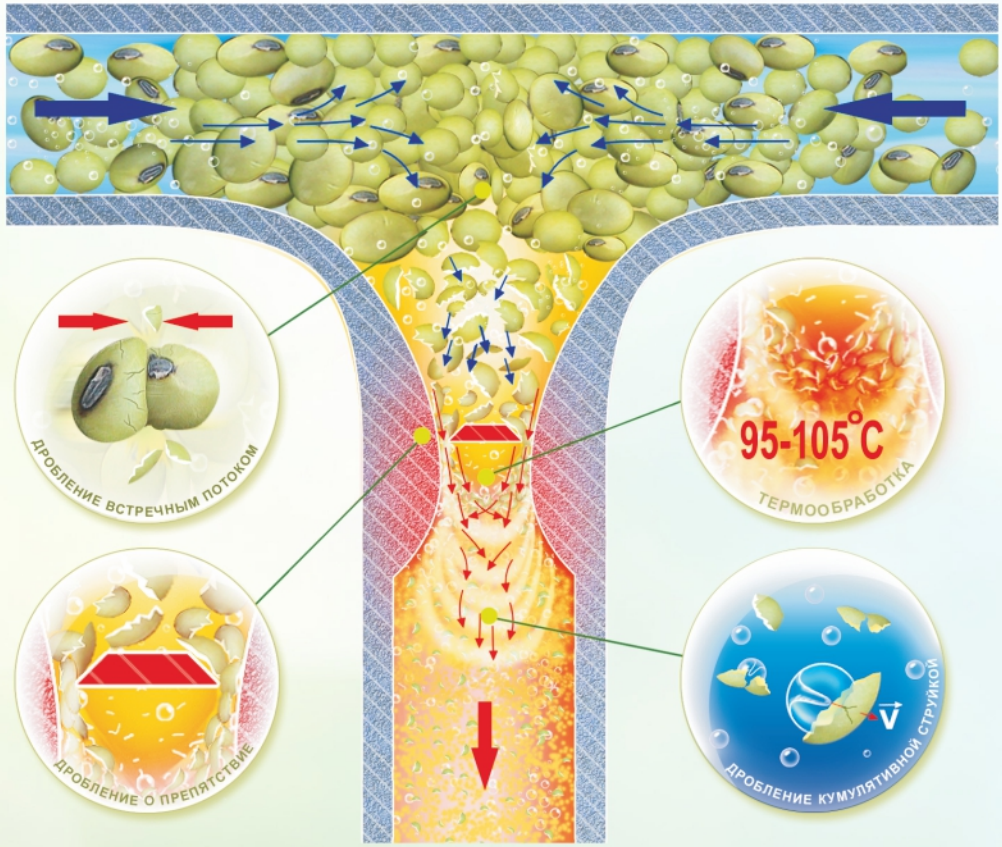
DISPERSIVE SOYA MILK
7 -10% solids content

FEED PROCESSING ACCORDING TO TEKMASH® TECHNOLOGY PROMOTES:

- indigestible fiber change over to sugar;
- more than 30% increase in amino aid assimilation;
- 2-3 – fold higher vitamin availability (no additional inputs);
- pathogenic flora destruction as well as mycotoxins, urease, antitrypsins, etc. content reduction to a safe level.

In 2005 TEKMASH equipment was included in the Ukrainian State Program. Since then it has been implemented on more than 200 farms in Ukraine, Russia, Byelorussia and proved to be quite promising.

PRINCIPLE PROCESSING WITH “TEKMASH®” EQUIPMENT



COMPARATIVE CHARACTERISTICS OF MILK, SKIM MILK AND VEGETABLE, (SOYA, LUPINE...) MILK PRODUCED BY «TEKMASH®» TECHNOLOGY

Formula	Wet fodders			
	Cow milk	Skim milk	Soya milk	Lupine milk
Solids, %	11,2	8,2	8,3	8,3
Fat, %	3,4	0,2	1,6	1,1
Protein, %	3,0	3,0	3,2	3,6
Carbohydrate, %	4,8	4,5	2,4	2,7
Exchange energy, kJ/kg	62	30	27	26