The National Academy of Sciences of Belarus

Republican Unitary Enterprise

«Scientific-Practical Centre of the National of Academy of Sciences of Belarus for Agricultural Mechanization»

Minsk, 2020

CATALOG

OF INNOVATIVE TECHNOLOGY SUPPORT FOR FARMING SECTOR IN THE REPUBLIC OF BELARUS

Republican Unitary Enterprise

«Scientific-Practical Centre of the National of Academy of Sciences of Belarus for Agriculture Mechanization»

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The majority of agricultural machines and units that are working in the fields of Belarus are developed by the RUE "SPC NAS of Belarus for agriculture mechanization". Our organization with its scientific potential as the one of the main links in the task of providing the country's food security.

Only in recent years, scientists have proposed about 170 development, which are implemented in production and in demand in the market. We compete with foreign suppliers. Today, the Center's specialists are working on creation of automated systems, robotic elements, focusing on the fifth-the sixth technological structures.

The majority of our developments are unique and patented. Whole range of tillage machines were implemented in production. Significant progress has been made in the field the technology of cultivation of flax. Machines for harvesting and preparation of feed are demanded by customers.

The carrots and cabbage harvesters are created. Soon the first belarussian berry harvester will appear in fields. Extremely successful in development is backhoe a trencher with laser inclinometer.

The technological complex of machines for the full cycle of work with potatoes-from planting to harvesting and fruit storage and pre-training has high buyers interest. The project modular the type for the silo from 2 to 10 thousand tons of potatoes with microclimate is entirely designed by our scientists.

The Center employs a team devoted to their work professionals, able to solve any problem that puts our management and agricultural production in General!

Director General
Komlach Dmitry Ivanovich

We invite you to mutually beneficial cooperation!

Contents

TECHNOLOGICAL MACHINERY

FOR TILLAGE, SEEDING, FERTILIZATION AND CULTIVATION

Modular design in tillage machines and seeders developed by the Scientific and Practical Center of the National Academy of Sciences for Agricultural Mechanization allows them to be supplied with various tools that can perform production operations under different soil and climatic conditions in different farming systems.

To mechanize the application of fertilizers, liming materials and plant protection products, a system of high-precision heavy and wide-coverage machinery of wide size range capable of working in a system of precision farming has been developed.

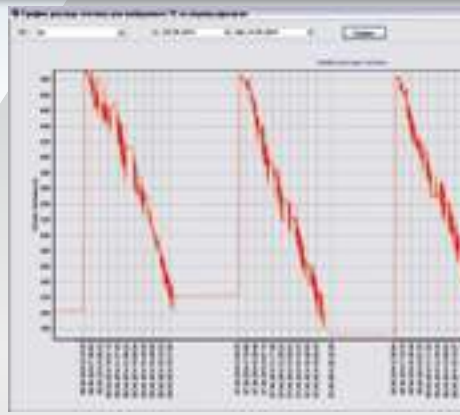
With special-purpose equipment for land clearance operations, the reclaimed land will be exploited to full extent and the cost of grassland farming reduced.

The range of machinery for tillage, seeding, fertilizing and land clearance operations provide for performing of all innovative cultural operations in farming.

for

Report on Fuel level Change in Fuel Tank

Fuel level at beginning-of-period, l	466
Refueling	9
Filled fuel, l	2555
Fuel level at end-of-period, l	242
Fuel consumption, l	2779
Treated area, ha	378,5



SPRINKLER INSTALLATION

UD-2500

Designed for IRRIGATION of vegetables, fodder, industrial crops and perennial grass.

TECHNICAL DATA

Irrigation performance (depending on intensity), m/h	up to 0,9
Irrigation intensity, mm/min	1,4
Operating pressure on the hydraulic turbine, MPa	0,2...1,2
Irrigation water rate, m^3/h	up to 50
Weight of machinery, kg	3850

ADVANTAGES:

- circular or sector irrigation when moving along the rows of plants;
- universal method of water intake (both from surface and underground water sources).

LIQUID DRESSING EQUIPMENT FOR SPRINKLER INSTALLATIONS

OGD-50

Quality FERTIGATION in accordance with agrotechnical requirements.

ADVANTAGES:

- exact compliance with the specified range of micronutrient fertilizer metering;
- automatic control of the proportional amount of micronutrients depending on changes in irrigation water rate;

TECHNICAL DATA

Working fluid-to-irrigation water ration, %	0,2…2,0
Working fluid tank capacity, at least, l	250
Pressure in water supply system, MPa	0,3…1,0
Irrigation water rate, m^3/h	up to 50
Weight of machinery, kg	850

- general purpose installation for use with mobile drum-and-hose sprinklers and full-circle sprinkler;
- independent of additional power sources.

SET AUTOMATED WATERING CAP 1

CAP 1

Designed for drip irrigation, trellis, dwarf or semi-dwarf orchards with compacted placement of trees according to the scheme: the distance between rows is 4 or 4.5 m, the distance between trees (spacing) of 1.2; 1.5 or 2.0 m.

TECHNICAL DATA

Type of equipment	stationary
The main performance (at the application rate of 10-30 l/m²), ha/h, not less	4,2–12,6
Water consumption, t/h	till 5
The area of irrigation as a set with, ha	till 5
Working pressure in the tube drip irrigation, MPa (ATM): minimum	0,05 (0,5)
maximum	0,42 (4,2)
The length of the laying pipe, m, not more	150

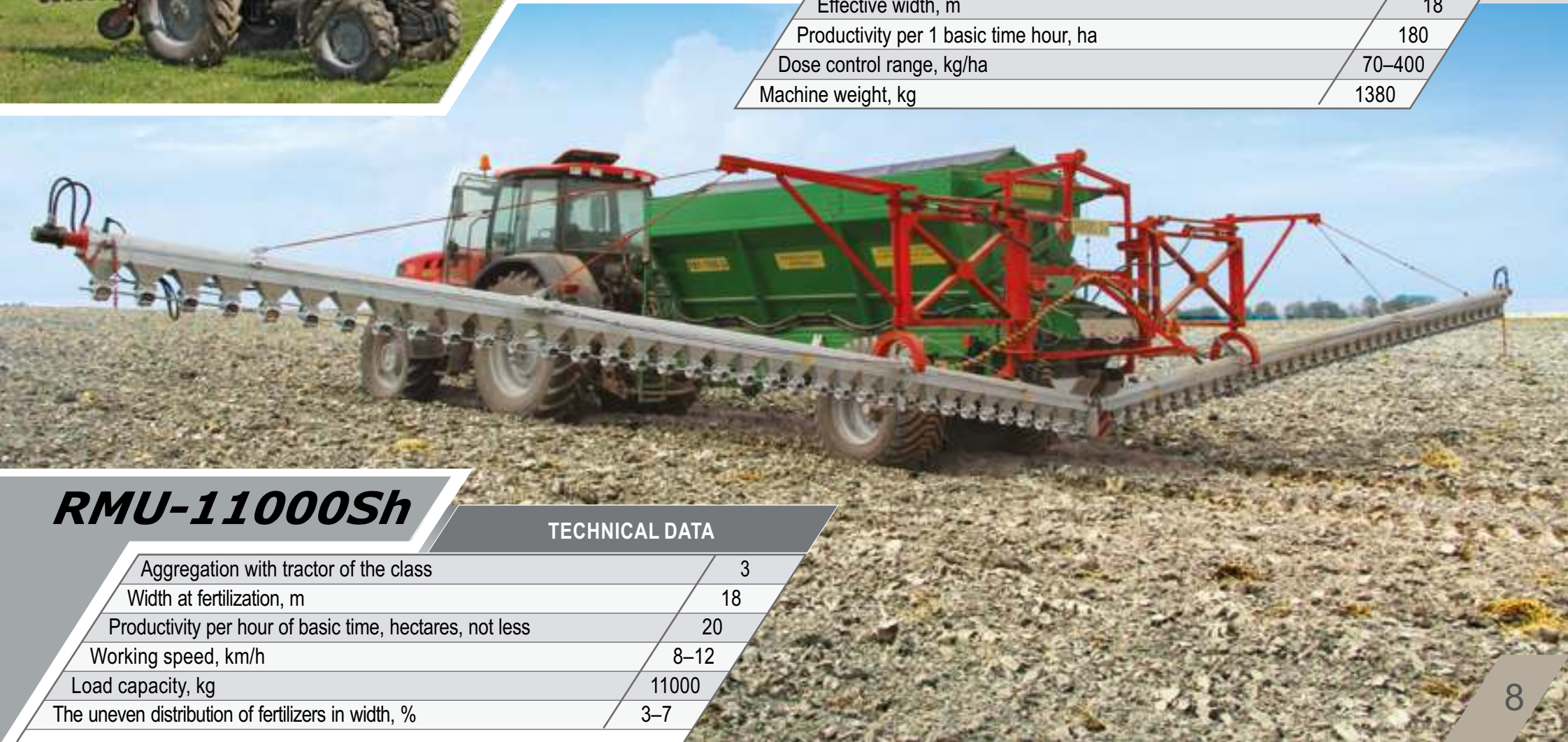
Tube diameter drip irrigation, mm	16
Filtration area of filter, m^2	0,9
Filtration area of filter, m^2	1,8
The mass of fillrectangle (dry weight), kg	600
Total weight of set, kg, not more	1000
The interval between infusions, m	0,1
The water flow of one dripper, l/h	2

ROD-TYPE FERTILIZER DISTRIBUTOR RSHU-18. PRECISION DISTRIBUTING BODIES TO THE MACHINE RMU-11000SH

Designed for precision application of feeding doses of mineral fertilizers.

RShU-18

TECHNICAL DATA	
Load-carrying capacity (for bulk density of fertilizers 0.65 t/m³), kg	1200
Field speed, km/h	8–12
Effective width, m	18
Productivity per 1 basic time hour, ha	180
Dose control range, kg/ha	70–400
Machine weight, kg	1380



RMU-11000Sh

TECHNICAL DATA	
Aggregation with tractor of the class	3
Width at fertilization, m	18
Productivity per hour of basic time, hectares, not less	20
Working speed, km/h	8–12
Load capacity, kg	11000
The uneven distribution of fertilizers in width, %	3–7

SLURRY FERTILIZER APPLICATOR MPN-16

MPN-16

Designed for self-filling, transportation and surface application of slurry fertilizer.

TECHNICAL DATA	
Load-carrying capacity, t	16
Effective width, m	up to 12
Productivity per 1 basic time hour, ha	45
Filling pump capacity, t/h	190
Rate of application, t/ha	30–80
Machine weight, kg	4500

SEMI-MOUNTED REVERSIBLE PLOWS

Designed for flat plowing of various soils, including stony soils with specific resistance to 0.09 MPa at a depth of up to 27 cm. They provide quality plowing of fields after annual and perennial grasses, grains, vegetables and industrial crops.

PPO-8-40

ТЕХНИЧЕСКАЯ ХАРАКТЕРИСТИКА

Property	PPO-4–40K	PPO-5–40K	PPO-7–40P	PPO-7-40	PPO-8-40	PO-(6+4)-40/45	PO-(8+4)-40
Type	Semi-mounted, reversible						
Aggregated tractor power, HP	90	90	90	90	250	350	450
Operating speed, km/h			до 10	7–10	7–10	7	8–10
Productivity per 1 basic time hour, ha	1,12–1,44	1,4–1,8	2,0–2,8	2,52	2,3–3,2	2,8–4,5	3,8–4,8
Number of bottoms, pcs	**4**	**5**	**7**	**7**	**8**	**10**	**12**
Weight, kg (without attachments)	2570	2740	5100	5130	3900	8000	7800
Number of attachments, pcs	-	-	-	-	2	2	2

PO-(8+4)-40

ADVANTAGES:

- the presence of consoles for additional treatment of a formation;
- plows P0-(6+4)-40/45 and PO-(8+4)-40 completed with skimmers and can work in the furrow and outside the furrow;
- on soils littered with stones, plows equipped with spring protection.

ENSURE incorporation into the soil up to 98% of stubble and plant residues.

STUBBLE-CLEANING AND TRASH COVERING MACHINE APO-6,5

APO-6,5

Designed for stubble cleaning and trash covering with recutting of crop and corn residues, cereal straw, rape and green manure cropping, fallowing and moisture conservation.

Disc tools, disk approach angle adjuster, and Danish tines

PROVIDE FOR
trouble-free operation on stony soils.

TECHNICAL DATA

Aggregation, traction class	3; 5
Unit type	semi-mounted
Capacity, ha/h	6,7
Plowing depth, cm	до 12
Operating speed, km/h	до 12
Effective width, m	6,5
Weight, kg	5200

COMBINED MACHINE FOR MINIMUM TILLAGE AKM-6

AKM-6

Designed for stubble cleaning, autumn soil cultivation, autumn cleaning if fields after harvesting of maize, beet and potatoes, early spring plowing of autumn-plowed land for sowing (moisture conservation and placement of fertilizers), 2-pass nonplow tillage of cultivated soil for sowing winter crops, grain, postharvest and postcut forage crops.

Disk and tine cultivators allow processing backgrounds covered with dense vegetation such as perennial grasses, tall-corn or beaten down cereals, and placement of tall-stalked green manure.

TECHNICAL DATA	
Aggregation, traction class	5
Productivity per 1 basic time hour, ha:	
- plowing depth up to 12 cm	4,2–6,0
- plowing depth more than 12 cm	3,6–4,8
Plowing depth, cm	6–16
Operating speed, km/h	6,0–10,0
Effective width, m	6,0
Weight, kg	5950

BOARDLESS PLOW UNIT ABT-4

ABT-4

Designed for boardless plowing of heavy soils to a depth of 30 cm, autumn cultivation of soil for spring sowing after harvesting of grain crops, leguminous plants, maize, beet and potato, mulching, leveling and reconsolidation of field surface.

THE UNIT FEATURE

is a combination of ripper, disk and roller tools that provides high-quality graded tillage, mulching and one-way compaction of soil.

Rippling tools mounted on resilient suspensions in the unit increase the reliability of the process performed by them.

TECHNICAL DATA

Type	semi-mounted
Aggregated tractor power, HP	300–350
Productivity per 1 basic time hour, ha	2,4–3,2
Depth of plowing with rippers, cm	до 30
Operating speed, km/h	6,0–8,0
Effective width, m	4,0
Weight, kg	5200

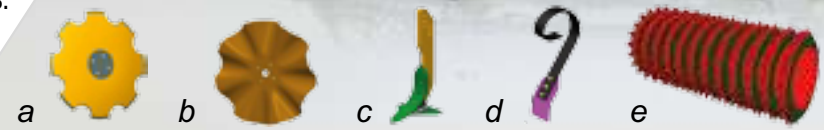
MULTIFUNCTIONAL TILLERS APM-6, APM-6A

APM-6

Designed to be used
in traditional agriculture.

EQUIPPED WITH:

a – concave disk;
b – wavy-edge disk;
c – digging points;
d – levelers;
e – cutaway disk packers.



FEATURE

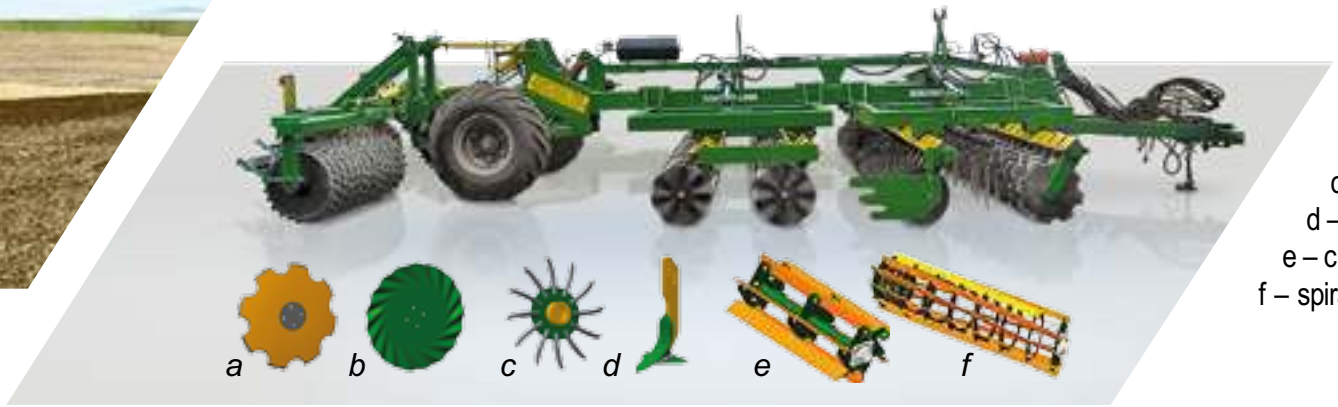
Modular design which make it possible to produce new design arrangements that ideally fit operations for various agricultural backgrounds by re-arrangement of tool assemblies or their replacement with changeable units.

APM-6, APM-6A

THREE MACHINES IN ONE

APM-6A

This is a modification of APM-6 unit designed for use in conservation cropping system, especially in the light soils and sloping lands.



EQUIPPED WITH:

a – concave disk;
b – wavy-edge disk;
c – wheel spiders;
d – digging points;
e – cutter wheels;
f – spiral-coil land packer.

TECHNICAL DATA

	APM-6	APM-6A
Aggregated with tractors of, HP	300–350	300–350
Plowing depth, cm	6–25	6–25
Operating speed, km/h	6,0±0,3	6,0±0,3
Specific fuel consumption per shift, kg/ha	8–15	8–15
Complete equipment weight, max, kg	10000	9600

Due to **VERSATILITY** and **MULTIFUNCTIONALITY**, new APM-6 and APM-6A units demonstrate their high operating efficiency.

Experience shows that as compared with the existing tillage machines the above-mentioned units enable the farms to reduce the requisite equipment fleet 2-3 times, reduce labor costs by 34-52% and the cost of mechanized operations by 40-49%.

COMBINED TILLER AKSh-6, AKSh-9

AKSh-6
AKSh-9

Designed for preparation of mineral soils (light, medium, and heavy clay loam) for sowing small-seeded crops: flax, sugar beet, rape, grass, as well as grains and grain legumes.

THE MACHINE IS PROVIDED

with sweeps, comb-type leveling device and two rows of crowfoot packers for preparation of a packed seed-bed at a depth of 10-30 mm.

ТЕХНИЧЕСКАЯ ХАРАКТЕРИСТИКА

	AKSh-6	AKSh-9
Aggregation, traction class	2–3	5
Productivity per 1 basic time hour, ha	3,6–5,4	7,2–12,4
Operating speed, km/h	6,0–9,0	8,0–13,8
Effective width, m	6	9
Plowing depth, cm	5–8	5–8
Weight, kg	4800	5400

TILL-PLANT OUTFIT FOR FLAX APL-4

APL-4

Designed for combining secondary tillage with sowing of flax and other crops (winter and spring rape, oil radish, mustard, herbs, including grass mixtures, and cereals) similar in seed size, seeding rate and sowing depth with simultaneous application of the initial dose of granulated mineral fertilizers

FEATURES:

- an innovative layout of units ensures the formation of an optimum seed bed;
- a seed and fertilizer sowing mechanism provides uniform distribution of the openers and minimizes their damage;
- furrowing trapezoidal rollers form the seedbed in a seed furrow of 60 mm in width with compacted bed at a depth required for band sowing;
- a colter opener and covering blade assembly ensures distribution of seeds and their packing down in the furrow followed with loose soil covering.

TECHNICAL DATA

Type	semi-mounted
Aggregation, traction class	3
Productivity per 1 basic time hour, ha	2,2–2,6
Operating speed, km/h	8–10
Effective width, m	4,0
Seed/fertilizer tank capacity, l	1600 / 400
Seeding/fertilizer sowing rate, kg/ha	2–350 / 30–85
Weight, kg	7600

TILL-PLANT OUTFIT APPA-6

Designed for seedbed preparation and regular drilling of spiked cereals, medium-grained legumes (pea, lupine), herbs and other crops similar in seed size, seeding rate and sowing depth with simultaneous application initial dose of granular phosphate fertilizer in the seed furrow.

APPA-6

APPA-6-01 / APPA-6-02

WITH REPLACEABLE POWERED AND NON-POWERED TOOLS

Provided with replaceable powered and non-powered tools.

The outfit is provided with four replaceable attachments with:

- disk tools;
- knife-shaped tools;
- snow working bodies;
- powered tools.

TECHNICAL DATA

	APPA-6	APPA-6-01	APPA-6-02
Type	semi-mounted		
Aggregation, traction class	3		
Productivity per 1 basic time hour, ha	3,6–4,8	4,8–7,2	4,8–7,2
Operating speed, km/h	6–8	7–10	7–10
Effective width, m	6	6	6
Plowing depth, cm	12	5–8	up to 8
Seed/fertilizer tank capacity, l	2700 / 770		
Seeding/fertilizer sowing rate, kg/ha	50–350 /15–20		
Weight, kg	9200	7500	7500

PNEUMATIC DRILLS S-9, SPP-9. TILL-PLANT OUTFIT APP-9

S-9

Designed for regular drilling of spiked cereals, medium-grained legumes (pea, lupine), herbs and other crops similar in seed size, seeding rate and sowing depth.

FEATURES of S-9:

- may be used for both moldboard and nonmoldboard cultivation of soil;
- seeding rate up to 15 km/h;
- weight is distributed evenly through the whole coverage (irrespective of canister fill level).

APP-9

Designed for seedbed preparation and sowing grain of the ordinary, srednesemennyh bean and others similar in size, seeding rate and seeding depth, crops with simultaneous introducing granulated mineral fertilizers.

FEATURES OF APP-9:

Coulter rail is mounted on three point linkage, which allows in the future to replace to another, and thereby to provide not only for ordinary seeding, but seeding.

ТЕХНИЧЕСКАЯ ХАРАКТЕРИСТИКА

	S-9	SPP-9	APP-9
Type	Semi-mounted		
Aggregated tractor power, HP	250–300	300–350	300–500
Productivity per 1 basic time hour, ha	7,2–13,5	до 13,5	7,2–13,5
Operating speed, km/h	8–15	8–15	8–15
Effective width, m	9	9	9
Sowing depth, cm	2–6	2–6	2–6
Weight, kg	9000	13000	13000

SPP-9

Designed for direct seeding of cereals and cruciferous crops with simultaneous soil application of granular fertilizers.

FEATURES OF SPP-9:

when sowing crops at the same time made fertilizers. The fertilizers are placed below the seed at a distance of 2-3 cm as the split disk used wavy the disc forming the mellow groove, with no compacted layer.

CULTIVATOR-FERTILIZER FOR CORN CROPS KRK-6

КРК-6

Designed for loosening soil between rows, weeding, making feeding doses of solid or liquid mineral fertilizers, processing, protection zones of plants by herbicides. Universal fit for any inter-row cultivation of row crops with spacing of 70 cm (6 rows).

DISTINCTIVE FEATURES:

the unit in one pass performs three operations: loosening of soil aisles; local fertilizer plant; processing protection zones herbicides.

ТЕХНИЧЕСКАЯ ХАРАКТЕРИСТИКА

Type	Semi-mounted
Performance per hour of sheet time, ha	1,26–3,15
Operating width, m	4,2
Operating speed, km/h	4–10
The number of concurrent operations, pcs	3
Number of rows tilled	6

DREDGER KORO-2

KORO-2

Designed to clean the bottom of drainage channels from sediment and vegetation and to build a profile of the bottom of the channels.

FEATURES

The ability for one pass to clean the channel, partially filled with water, and the formation of the bottom profile of the channel. Rotary working body allows to purposefully divert water from the zone of treatment by specific forms of knives.

DITCH BANK MOWER-CUTTER KIO-1

KIO-1

Designed for mowing and shredding weeds and annual shoots of shrubs with stem diameter up to 5 mm on the slopes of drainage canals and road-side ditches.

TECHNICAL DATA

	КОРО-2	КИО-1
Machine type	hinged	mounted
Operating speed, km/h	0,8–2	2–5
Effective width, m	0,8	0,8
Output, ha/h	0,30	0,11–0,30
Number of blades	5	20
Machine weight, kg	4450	1500
The depth of the clean channel when the coefficient of laying the slopes from 1 to 1.5, not more	2,0	n/a

ADVANTAGE

suspension of blades on a shaft, which contributes to longitudinal movement of each blade for cushioning collision with any obstacle or stone.

APPLICATION

of mower-cutter will provide for mowing and cutting in a single run, i.e. there is no need of using any additional equipment for removing mown down vegetation.

GRASSLAND MOWER KP-6,2

KP-6,2

Designed for mowing and shredding weeds and annual shoots of shrubs with stem diameter up to 5 mm and for cutting small hills and molehills.

For the first time in the territory of the post-Soviet countries knee colters were used in mowers for higher mowing and cutting performance.

NO NEED OF WELL PREPARED FIELD TO OPERATE THE MOWER,

as contour following is provided by paired carrier wheels, with each pair having a floating axle.

TECHNICAL DATA

Aggregated with tractors of class	3
Operating speed, km/h	6–10
Effective width, m	6,2
Cutting height, cm	2,5–8,0
Machine weight, kg	3450

COMPLEX PREPARATION

Designed to prepare the grains and seeds of cereals, legumes and canola and includes the following operations: reception of the grain heap, cleaning, drying, screening, seeds, and etching (if necessary) with the subsequent packing in containers.

APPOINTMENT

Ensuring the quality of seeds of cereals, legumes, cereals crops and oilseed rape in accordance with the rules of the STB of the Republic of Belarus, disseminated on seeds.

Included in the complex machinery and equipment can be used offline.

Universal cleaning machine **MZU-40**

Machine secondary treatment of seeds **MVO-12**

Unit trialnyh cylinders **BT-6**

Vibranium-grading table **MVS-5**

OF SEEDS OF HIGH REPRODUCTIONS

Automated control system (ACS) grain cleaning-drying complex with grain storage is designed to provide the operator information about the work of the complex, control complex, control complex mechanisms in accordance with the technological process, control and maintain within the specified limits of the operating modes and parameters of the complex. The ACS is automatically activated after power-on the control Cabinet complex.

The main screen when you start the program

Bagging equipment **VV-10**

фа

Weighting and packing equipment **OVZ-300**

Stacker bags on pallets **UMP-300**

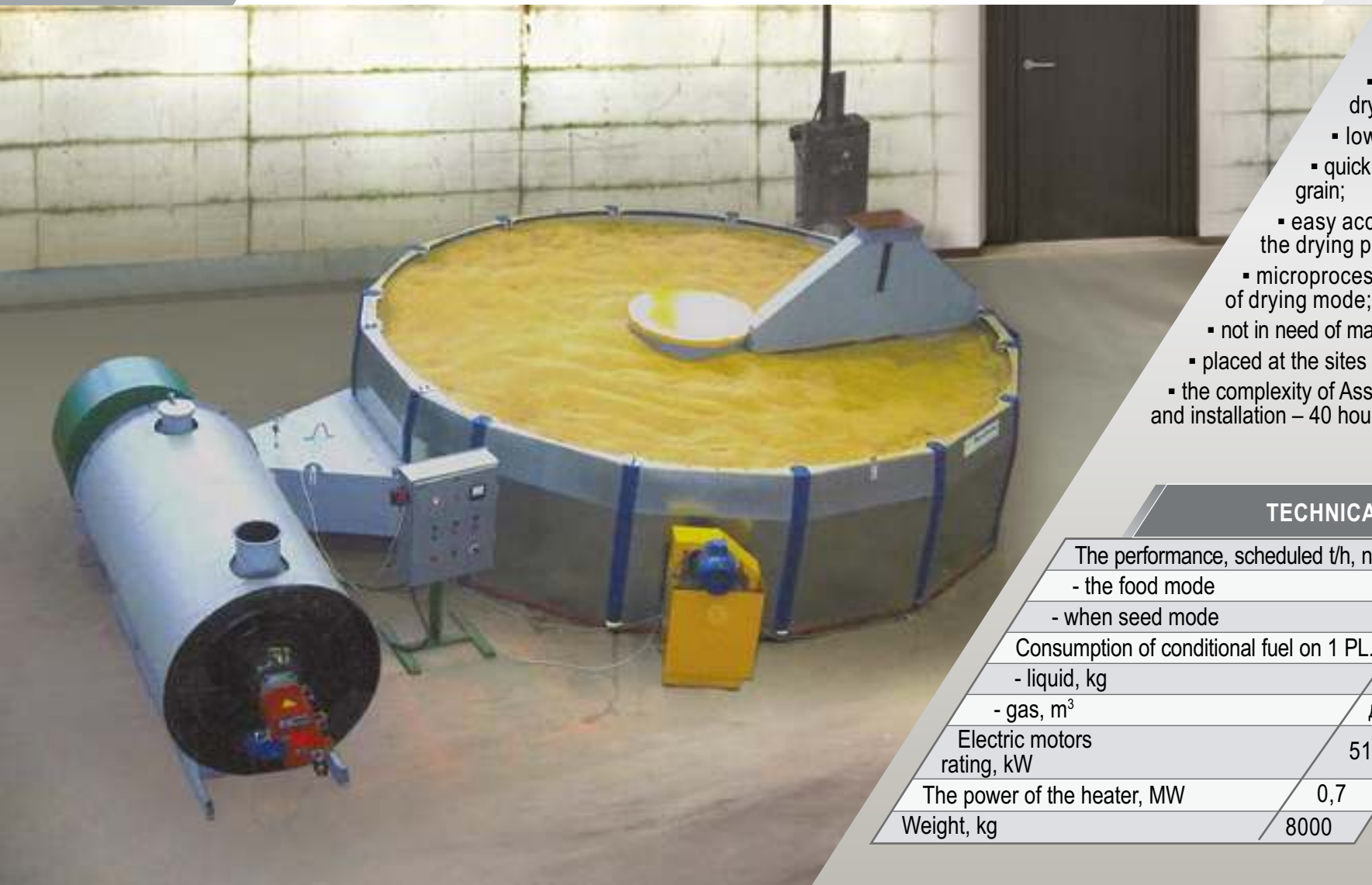
TECHNICAL DATA

The performance of the complex (on wheat with a nature not less than 750 g/l) per hour regular time:	
– cleaning and drying seed, pl.t., not less	20
– cleaning and drying of feed grain, pl.t., not less	40
– preparation of the seeds (sorting, treatment and packing), t , not less	10
The yield of seeds of the main culture (I the fraction of the table pneumocontrolled) in relation to their content in the raw material (at the above characteristics of the original grain heap), %, not less	80
Waste full of seeds of the main crop in non-use for sowing fraction of the process material, %, not more	0,1
Crushing of seeds in the processing of all the technological equipment should not exceed, %	1

DRYER, ROTARY, UNIVERSAL SKU-10

SKU-10

Designed for fast and high quality drying of food and feed grains and seeds of cereals, legumes, canola, flax, sunflower, perennial grasses



ADVANTAGES:

- minimal heat loss in the drying process;
- low specific fuel consumption;
- quick cleanup from the remnants of grain;
- easy access for control of the drying process at any point;
- microprocessor control system of drying mode;
- not in need of major foundations;
- placed at the sites of 10x10 m;
- the complexity of Assembly and installation – 40 hours

TECHNICAL DATA

The performance, scheduled t/h, not less:	
- the food mode	10
- when seed mode	5
Consumption of conditional fuel on 1 PL. t:	
- liquid, kg	до 6
- gas, m^3	до 8
Electric motors rating, kW	51
The power of the heater, MW	0,7
Weight, kg	8000

DRAIN-LAYING EXCAVATOR WITH LASER INCLINOMETER ETZ-203

ETZ-203

Designed for forming a closed system of tube horizontal drainage. The slope of ditch is set automatically by the laser inclinometer.

TECHNICAL DATAA

Machine type	self-propelled
Tool type	chain-bucket
Depth of trench, m	2
Trench width, m, max	0,5
Diameter of tube to be buried, mm, max: ceramic / plastic	50–150 / 50–110
Operating speed, km/h	0,014–0,390
Machine weight, kg	14000

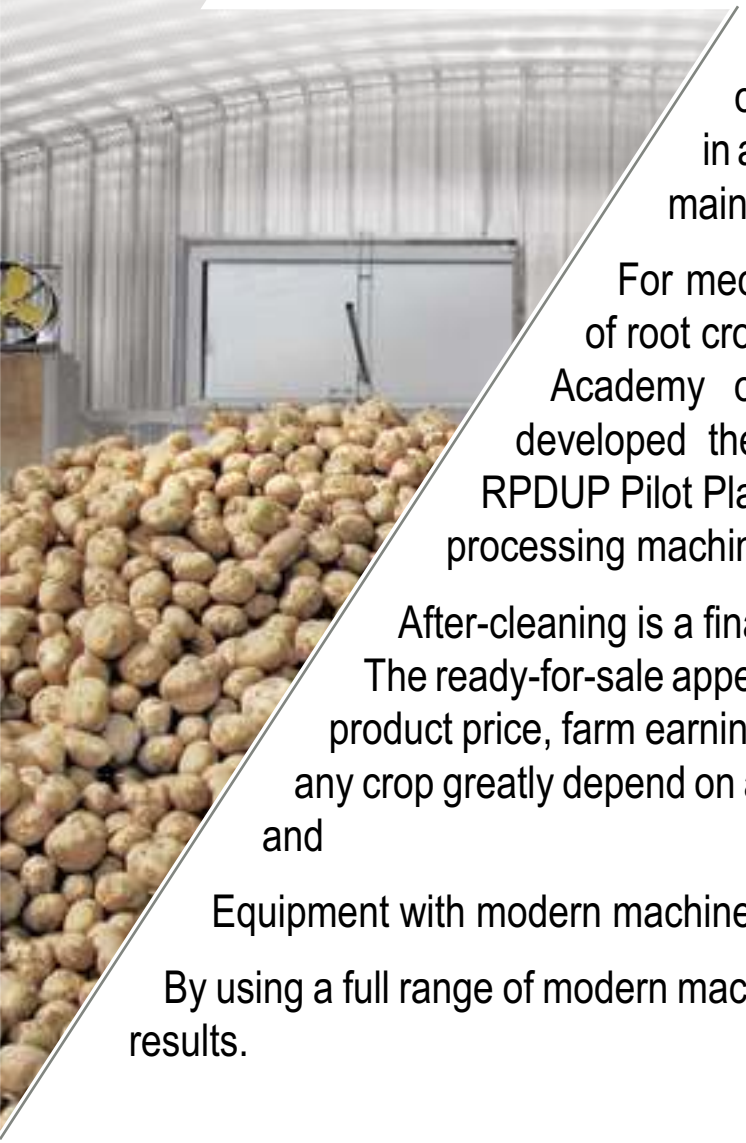
FEATURE

Drain-laying excavator is designed with a chain-bucket tool capable of shoveling soils with wood particles and stones.

The machine can lay both ceramic and plastic tubes by trenching.

TECHNOLOGICAL MACHINERY

FOR CULTIVATION, HARVESTING, PLACEMENT IN STORAGE AND PRE-SALE PREPARATION OF POTATOES AND VEGETABLES



Modern technology of potato and vegetable production is a set of organizational, agrotechnical and processing activities performed in a strictly defined sequence for gaining the maximum yield while maintaining soil fertility and the optimum energy consumption.

For mechanization of cultivation, harvesting and after-cleaning of root crops the Scientific and Practical Center of the National Academy of Sciences for Agricultural Mechanization has developed the entire technological complex machines and the RPDUP Pilot Plant has set up production of the entire range of processing machines.

After-cleaning is a final step in potato and vegetable production. The ready-for-sale appearance and storage of roots and ,hence, product price, farm earnings and profit gained from cultivation of any crop greatly depend on adequate organization of processes and

Equipment with modern machinery and appliances.

By using a full range of modern machinery, you will gain the best results.

MACHINES FOR THE CULTIVATION OF ROOT CROPS ON RIDGES

SHAPER RIDGES MOUNTED *GN-1*

Designed for cutting and forming ridges with the specified parameters.

A PLANTER FOR PLANTING THE ORIGINAL SEEDS *SGR-1*

Intended for planting the original seed potato and Jerusalem artichoke on the ridges with a width of 1.5 m in 2 and 3 row with spacing of 75 and 42 cm.

THE PLANTER RIDGE *SG-2*

Intended for planting seeds of potatoes and artichokes on the ridges with a width of 1.5 m in 2 rows with spacing of 75 cm.

CULTIVATOR RIDGE *KG-1*

In the unit with a tractor of the class 1.4 processes and restores grooves between the ridges, and on the surface of the ridge performs pre-emergence harrowing of crops and inter-row cultivation with protection rows from seeding and harrowing.

SEMI-MOUNTED POTATO PLANTER SK-4

SK-4

Semi-mounted four-row planter with hopper capacity of 2.5 tons, for potato planting with row middle of 70, 75 and 90 cm. Potato planting is combined with fertilizer distribution process, plant protection and ridging.

Two pairs of carrier wheels provide lateral stability for planters on slopes.

The planter is equipped with the original planter attachments by Grimme.

TECHNICAL DATA

Number of processed rows	4
Row width, cm	70; 75; 90
Capacity, ha/h	1,4…2,8
Aggregated with tractors	MTZ 80/82, MTZ 100/102
Potato hopper capacity, kg	2500
Total capacity of treater tanks, dm³	300

CULTIVATOR-CUM-RIDGER-FERTILIZER KOR-4

KOR-4

The cultivator is characterized by the possibility of its use for row middle of 70, 75 and 90 cm, for cutting or ridging middle bursting up, weed control concurrently with local application of mineral fertilizers.

Working devices of the cultivator are mounted on the powerful spring struts, so you can use the cultivator on stony soils.

For local application of fertilizers, the cultivator is provided with eight Danish tines with chisel-shaped applicator shovels.

TECHNICAL DATA

Number of processed rows	4
Aggregation class (nominal loads)	1,4 (KOP-4) / 2 (KOP-4-01)
Row width, cm	70, 75, 90
Productivity per basic time hour, ha/h	2,7
Total capacity of fertilizer boxes, lm³	500

CABBAGE HARVESTER KPK-1

KPK-1

This machine provides for one-row harvesting of cabbage, cultivated row middle of 70 cm and more, and with after-cleaning of heads of cabbage in the process of harvesting and loading into a container or a trailer riding aside.

Heads of cabbage harvested are intended for fresh products market and for industrial processing.

The harvester is operated by a tractor driver via console in the cab.

Cabbage harvesters are equipped with a cleaning system to efficiently clean out the redundant leaves, behind which is a sorting table for manual sorting of cabbage before loading to silo or hopper.

Harvester attachments are driven from a stand-alone hydraulic system via tractor's PTO shaft.

TECHNICAL DATA	
Aggregated with tractors of class	1,4
Harvester type	semi-mounted
Number of harvested rows, unit	1
Row width, cm	75
Operating speed, km/h, no over	2–4
Productivity per basic time hour, ha/h	0,11
Attending personnel by occupation, person: tractor driver/operator	1 / 1–2

TOP-PULLING CARROT HARVESTER KTM-1

KTM-1

Harvester is suited for loading in the hopper carrots harvested from a single row, when cultivated in accordance to a one-or two-row scheme on the profiled surface, with subsequent discharge of root crops to a trailer. vehicle.

HOPPER CAPACITY
up to 4 tons, harvesting loss not over 4%.

Harvesters are operated by a tractor driver via a console, and instrumentation in the tractor cab.

KTM-1 harvester was awarded with a diploma as a winner in the «The quality of design» contest in the nomination «Machinery and equipment for agriculture» at the International specialized exhibition «BELAGRO – 2015».

TECHNICAL DATA	
Aggregated with tractors of class	2–3
Number of harvested rows, unit	1
Lifting depth, m up to	0,3
Operating speed, km/h, no over	3,0–5,0
Productivity per basic time hour, ha/h	0,12
Weight of harvester, kg, not over	7500

SIDE FEED HOPPER BPB-150

BPB-150

TECHNICAL DATA	
Productivity, t/h	60–150
Specific power consumption, kWh/t	0,153–0,061
Hopper capacity, m^3	9
Attending personnel, person	1
Weight, kg	2750

The hopper **DESIGN** is suited for using side trip trucks.

Designed for receiving piles of root crops and placing them onto a conveyor and then takin to a storage or dressing station.

Stepless speed control for horizontal conveyor and two modes of speed for inclined conveyor contribute to the qualitative performance with minimal loss – 0.2%.

ROW FOR BEETROOT REVISION LPS-3000

LPS-3000

Designed for inspection, separation into three fractions (up to 50 mm, 50-100 mm, 100-1200 mm), packing in polymer net beet when removed from storage.

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Type	stationary
Weight, kg, not more	2700
Installed power, kW, not more	6,5
Productivity per hour, kg, not more:	2500
- base / - running time	3000 / 2500
Personnel, man:	
- the processing / - packing	4 / 2

Many machines and equipment from universal and can be used for pre-sale preparation and packaging of potatoes, onions, topinambur and other vegetables.

COMPLETE LINE OF EQUIPMENT FOR POTATO AND VEGETABLE PLACEMENT IN STORAGE AND REMOVAL

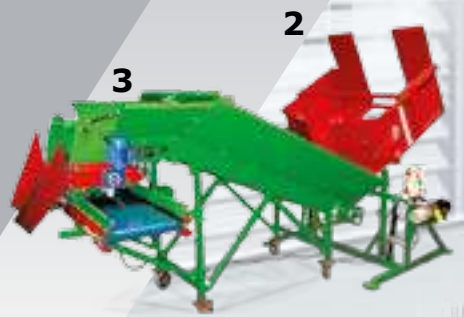
The line is based on a building-block concept which allows various configurations to be used for the line.

By using the available list of technologies, every potato producer may configure its own system of machines to suit the individual technology needs!

THE LINE INCLUDES EQUIPMENT:

1. Potato dressing station PPS 20-60
2. Picking table CPP
3. Inclined conveyor KN-650
4. Pick-up scooter for potato (mole) SKP-40
5. General-purpose filler UNB-2
6. Telescopic loader ZT-40
7. Telescopic conveyor KT-40

PRODUCTION LINE FOR RECEIVING, PICKING, PRE-SALE PREPARATION, WEIGHTING AND PACKING OF VEGETABLES (POTATOES, CARROTS, BEETROOTS, ONION, TOPINAMBUR)



THE LINE INCLUDES THE FOLLOWING EQUIPMENT:

1. Storage bin for potato and vegetables BNK-15
2. Container dumper OK-1
3. Receiving and loading conveyors KP-700, KP-1000, receiving hopper BP-600
4. Vegetable washing machine UMK-10
5. Felt drying machine FSK-10
6. Dry cleaning machine MSOK-5
7. Rotary table
8. Vegetable polisher MPK-10
9. Onion cutter MOL-5
10. Calibration unit (radial)
11. Sorting table (roller, inspection)
12. Calibration unit (grid)
13. Automatic sack-stitching machine (mesh) MAUS-25
14. Mobile reloading conveyor KPP-600-01, KPP-600
15. Automatic PVC film wrapper MAUP-5, MAUP-18
16. Computer-aided balance KVS-10 with feed conveyor KVS-10
17. Weighing batcher (bagger-weigher) VSP-50
18. Vegetable packer MEK-2
19. Bag palletizer USPA-10

MECHANICAL EQUIPMENT

FOR COMMERCIAL ORCHARDS

• Mechanization improvement is crucial for obtaining high-quality produce in requisite volumes , it is crucial to improve mechanization of all activities for production of fruits and berries (soil preparation, planting of orchard, care, harvesting, after-harvest processing and storage).

• The development and introduction of a range of machines will contribute to better mechanization of processes in fruit production, increase the yield, lower production costs of cultivated plants, and bring consumption of fruits and berries in the country to reasonable nutritional standards.

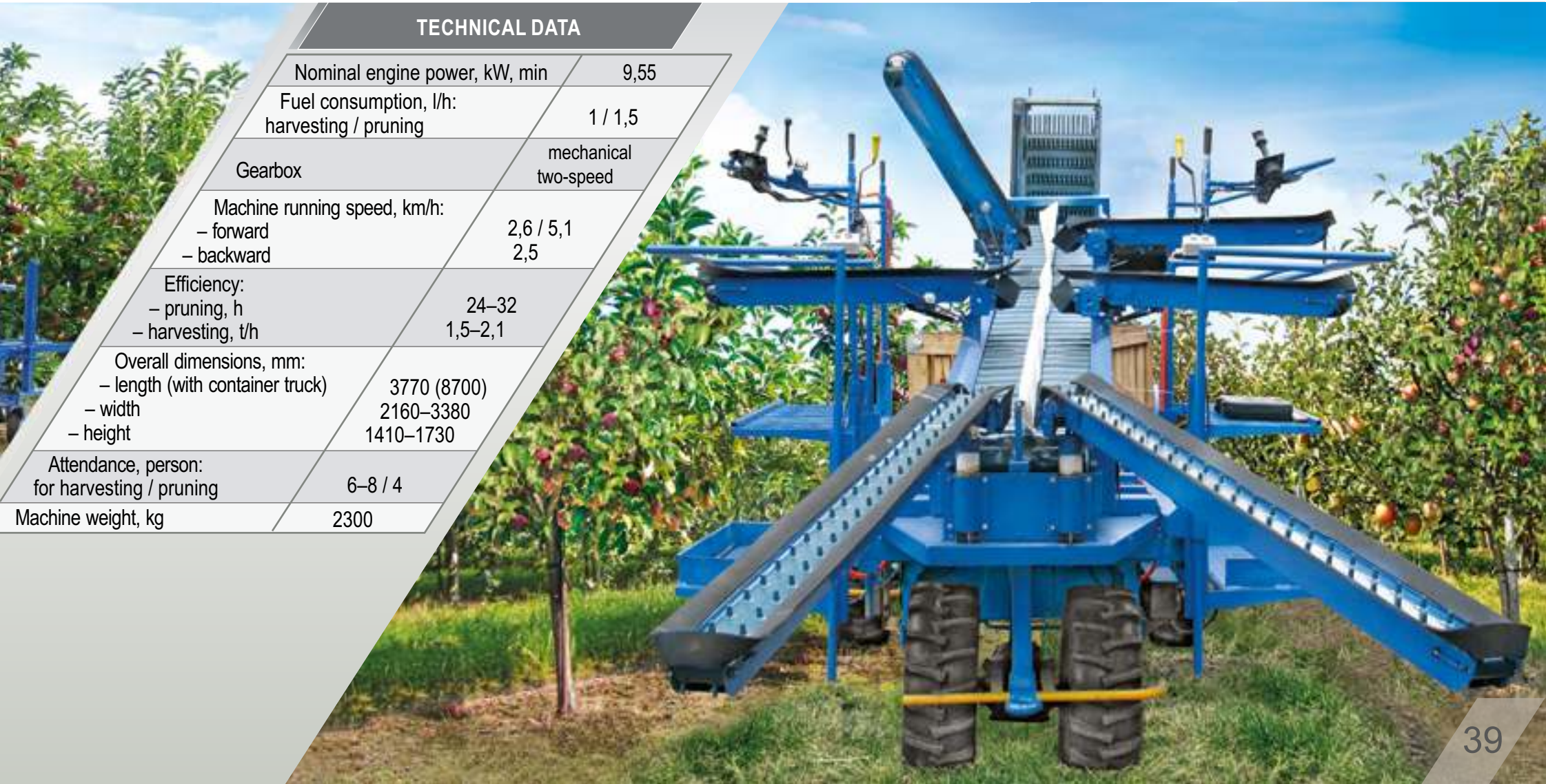
SELF-PROPELLED UNIVERSAL MACHINE FOR FRUIT PICKING AND PRUNING ASU-6

ASU-6

Designed to collect the fruits and pruning for shape in seed orchards of intensive type. It provides the optimum mechanization of technological processes, pruning and quality fruit harvesting while increasing productivity by 2,5 times during harvesting and 5 times – when cutting as compared to manual labor.

TECHNICAL DATA

Nominal engine power, kW, min	9,55
Fuel consumption, l/h: harvesting / pruning	1 / 1,5
Gearbox	mechanical two-speed
Machine running speed, km/h: – forward – backward	2,6 / 5,1 2,5
Efficiency: – pruning, h – harvesting, t/h	24–32 1,5–2,1
Overall dimensions, mm: – length (with container truck) – width – height	3770 (8700) 2160–3380 1410–1730
Attendance, person: for harvesting / pruning	6–8 / 4
Machine weight, kg	2300



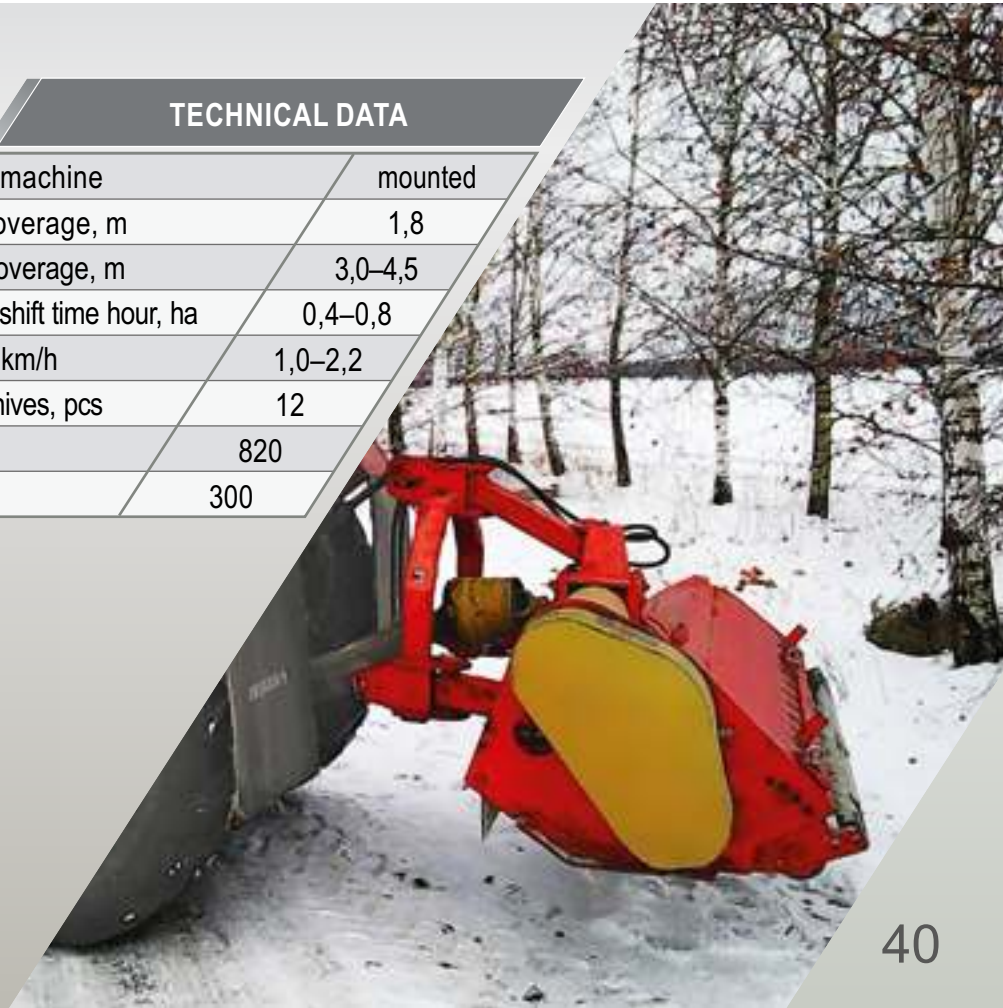
FRUIT-TREE BRANCH REMOVER KUV-1,8

KUV-1,8

Designed for concurrent performance of windrowing and chipping cut and swathed branches of fruit trees and shrubs (and vine) with spreading chips all over row middles. A branch windrower is mounted in front of the tractor and a chipper is mounted on the rear hitch of the tractor of class 1,4.

TECHNICAL DATA

Type of machine	mounted
Chipper coverage, m	1,8
Windrower coverage, m	3,0–4,5
Productivity per shift time hour, ha	0,4–0,8
Operating speed, km/h	1,0–2,2
Number of chipper knives, pcs	12
Chipper weight, kg	820
Windrower weight, kg	300



HALF-ROW BERRY HARVESTER KPJ

KPJ

Intended for berry currant, chokeberry, gooseberry, wild rose.

Part of the processor consists of the following main units: frame, godoberi, conveyors (longitudinal and transverse), table, platform, drive, fan, move the wheel, hoist, hydraulic system, fencing and lift mechanism.

TECHNICAL DATA

The type of processor	trailer
Is aggregated with tractors of class	1,4
Weight, kg, not more	3000
Overall dimensions in working position, mm, not more: length / width / height	8000 / 2600 / 2600
Overall dimensions in transport position, mm, not more: length / width / height	6600 / 2600 / 2600
Ground clearance, mm	120–240
Working speed, km/h, not more	0,2–1,0
Transport speed, km/h, not more	10,0
Performance, ha/h, not more	0,05
The number of personnel, persons	2

TECHNOLOGICAL MACHINERY FOR MECHANIZATION AND AUTOMATION OF PROCESSES IN FORAGE PRODUCTION AND ANIMAL HUSBANDRY

The market economy and its relevant competition between manufacturers call for the efficient use of raw materials potential, realization of innovative developments in technology and engineering, optimal organization and management of livestock production.

Modern technical equipment used for mechanization of livestock farms and complexes has a conclusive effect on livestock production and competitiveness of their produce.

BALER PT-800

PT-800

Designed for picking up swathes of undercured hay of natural and cultivated herbs, their pressing into bales of rectangular form and banding with twine.

FEATURES:

- two stage compaction;
- size reducer and bale shredder.

TECHNICAL DATA

Type	semitrailer
Operating speed, km/h	6–12
Productivity per basic time hour, t:	
- for hay	25,0
- for straw	17,0
- for undercured grass	38,0
Bale dimensions (length x width x height),cm	(60–300)x80x(70–80)
Bale density, kg/m^3:	
- for hay moisture 20–22 %	150–220
- for straw moisture 16–22 %	110–150
- for sun-cured grass moisture 45–55 %	300–380

PLATFORM WITH FORAGE HANDLING UNIT PMK-10

PMK-10

DESIGNED

for picking up and transportation of fodder packed in rolls or bales, sun-cured grass packed in film as well as flax coils followed with unloading and stacking in storage areas, unstacking and transportation of coils and bales to the place of use.

FEATURES:

- use of hydraulic manipulator to lift/lower platform in its stationary and moving part in a maximum range of 7.0 m;
- a universal gripper for loading round bales and bales packed in net or film;
- due to built-up construction of the platform, it is reduced in length up to 35% while maintaining the required load capacity of 10 tons.

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TECHNICAL DATA

Aggregated with tractors of class	3
Load-carrying capacity, t	10
Productivity per basic time hour, t	8–19,5
Platform capacity rolls/bales, pcs	22/24
Load/unload time, min	25/22
Specific fuel consumption, kg/t, not over	0,75
Weight, kg	5840

TIPPING TRACTOR SEMITRAILERS WITH LOAD-CARRYING CAPACITY OF 15 AND 20 TONS

FOR UNIFIED TWO-AXLE AND THREE-AXLE CHASSIS

PT-15S
PT-20S

Tripping tractor semitrailers PT-15S and PT-20S are suited for transportation and unloading of silage and hay mass, grain, feed, roots, sugar beet pulp, building materials, coal and other bulk cargo.

FEATURES:

unified chassis is made as a separate unit to have it used all year round with different technological equipment.

ТЕХНИЧЕСКАЯ ХАРАКТЕРИСТИКА

Name of unit	PT-15S	PT-20S
Type	semitrailer	
Load-carrying capacity, t	15	20
Discharge time, s	24	31
Semitrailer weight, kg, not over	5300	6500
Body lift , vertical, degree, at least	(45°)	
Attending personnel (tractor driver+operator), person	1	
Body capacity, m^3, with / without extension sides	– / 20	28 / 22
Loading height, mm, not over, with basic / extension sides	3000 / 3400	3550 / 3850

UNIT FOR DISTRIBUTION AND COMPACTING OF FEED IN THE STORAGES ARUK-5

ARUK-5

Intended for distribution and compacting of feed in the storage loading in trench storage.

TECHNICAL DATA

Is aggregated with tractors of class	5
Productivity, t/h, not less:	
- during the laying of the silage	40
- during the laying of the hay mass	30
Weight operational, kg	18000 ± 2000
The number of sealing disks, PCs	14
Disc diameter, mm	1200 ± 50
The width of the disk, mm	16
Working speed, km/h	3–6

MOBILE COMP
FOR FEED QUALITY DE

INCLUDES:

- infrared analyzer forages AgriNIR;
- moisture analyzer;
- portable hygrometer for humidity measurement rough feed (temperature sensor);
- laboratory scales;
- mill laboratory for grinding of the samples;
- laboratory blender for grinding wet food;
- drying oven;
- the cool box.

ALWAYS QUALITY FOOD!

PLEX
EFINITION

EQUIPMENT FOR FORAGE PLACEMENT IN STORAGE AND REMOVAL FROM STORAGE AZVK-352S-02

AZVK 352S-02

DESIGN FEATURES:

▪ includes a self-propelled chassis «Amkodor-352S 02» with improved traction and dynamic characteristics;

▪ is equipped with a range of replaceable tools:
- a device for loading and distribution of stalk feed;
- feed bucket;
- bucket for bulk materials;
- bucket with a clamp.

TECHNICAL DATA

Productivity per basic time hour, t, minimum:	
- when placing silage (maize of moisture content about 75%) to storage	45
- when placing haylage (moisture content about 50%)	35
- when unloading silage / - haylage	50 / 40

Operating speed, km/h	2,5–7
Tool carrier weight, kg	13300
Specific tire pressure, kPa	120–170

SELF-PROPELLED FEED MIXER-DISTRIBUTOR SSR-12

SSR-12

Designed for self-loading of stalked and any loose forages with weighting to prepare any animal feed mixes to cattle farms of 800 or more heads.

FEATURE

The key feature of the feed distributor is an innovative self-loading device solution which allows cutting of feed wall to a depth of 0.7 m without moving the feeder to a parallel row, which improves the self-loading device performance by 30%.

TECHNICAL DATA

Mixing chamber capacity, m^3	18
Load-carrying capacity, kg	9000
Number of augers in a mixing chamber, pcs	3
Height of feed mass grab, mm	4200
Engine	D-260.45 3A

Travel speed, km/h:	
- operating speed	2–4
- transport speed	30
Base, mm	5350
Gauge, mm	1870
Weight, kg	1380

MACHINE FOR FEED PREPARATION AND DISTRIBUTION WITH SELF-LOADER APRS-12 AT CATTLE FARMS

APRS-12

Designed for self-loading and shredding stalk feed, mix it with the other ingredients in the ration, transportation and delivery of feed mixes for animals to feed table or feed boxes with a side height up to 0.75 m in livestock houses with feeding passage of not less than 2250 mm in width, the door opening at least 2600 mm as well as on outdoor feedlots.

This bunk feeder is capable of loading any ingredients of feed mixes.

TECHNICAL DATA

Hopper, m^3	12
Productivity, t/h	16
Uniform mixing of feed,%	85±5
Load-carrying capacity, kg	3500
Traveling speed. km/h, not over	12
Overall dimensions, mm: length / width / height	5900 / 2300 / 2600

RANGE OF EQUIPMENT FOR MOBILE FODDER PLANT MKOK-4

MKOK-4

Designed for the preparation of full-ration mixed fodder for different species of farm animals.
Provides automated weight batching of ingredients, grinding and mixing according to a given recipe.

May be used both in stationary and mobile make of the equipment when installed in grain storage and animal feeding spaces.

ADVANTAGES:

- reduction in the cost of produced fodder by 15 ... 20% due to reduction ingrain carrying cost and running costs through the use of domestic equipment;
- compliance of fodder to zootechnic requirements is ensured by two-stage adding of premixes to the fodder and its loading in the mixer by layer;
- elimination of manual operations in loading ingredients;
- high degree of unification with the equipment of mixed fodder plants.

TECHNICAL DATA

Type	Tractor-drown
Power source	diesel-generator
Nominal power, kW, max	120
Weight without vehicle, kg	6300
Productivity, t/h	4

Per hour fuel consumption at nominal load, kg, max	3,5
Number of grain ingredient types	up to 4
Number of premix types	up to 2
Uniformity of mixing, %	90±5
Total weight of one daily ration of mixed fodder, kg, max	300
Attendance	1–2

MACHINE FOR UNWINDING STALKED FEED MRSK-1800

MRSK-1800

Designed for self-loading and unwinding stalked feed, pressed into bales, followed by their dispensing both to bunk feeders and on the feed table. It can be used for unwinding and making straw litter.

DESIGN FEATURES:

- using a single mechanism for feeding and unwinding round bales;
- self-loaders and additional mechanisms make it possible to reduce the machine weight up to 30% as compared with the prototype.

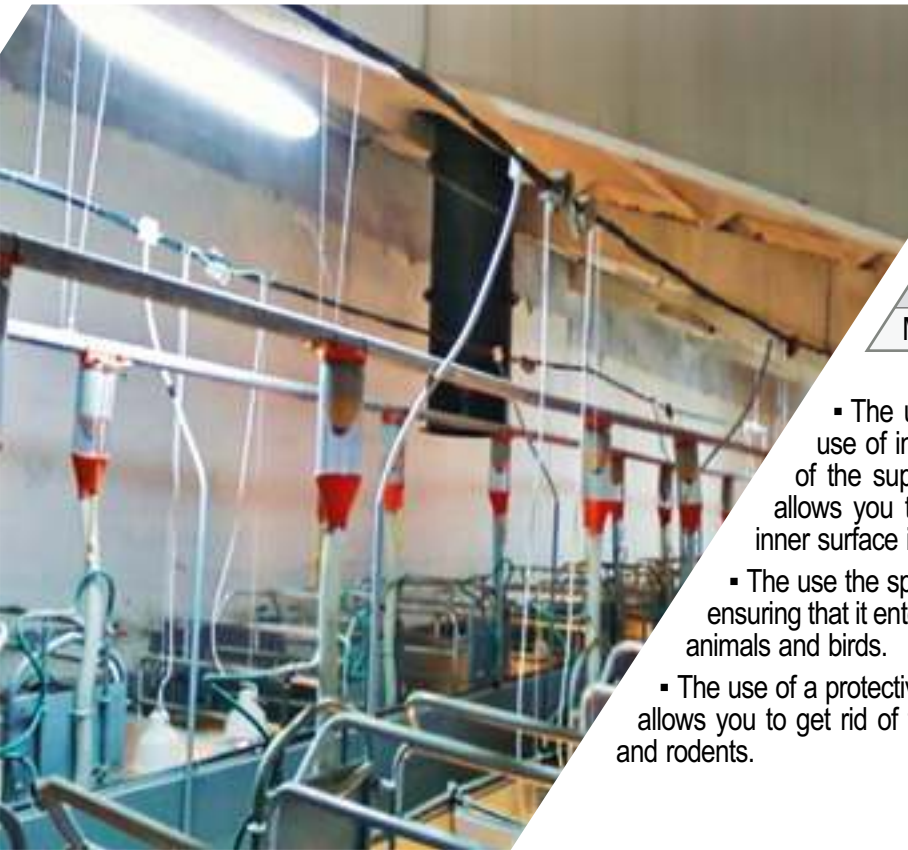
TECHNICAL DATA

Type	mounted
Drive	hydraulic
Aggregated with tractors of class	1,4
Productivity per basic time hour, t, (including self-loading and unwinding): - while feed distribution;	3,0
- while making a litter	3,0
Irregular feed along the feed line length (coefficient of variation), %	20
Operating width of litter, m	2,5
Nonrecoverable feeding losses	not tolerable
Level of hopper unloading, %	98
Number of concurrently loaded round bales, pcs	1
Load-carrying capacity, kg	700
Weight, kg	800

SET OF EQUIPMENT FOR VENTILATION KOV

KOV

Intended for normalization of parameters of the air environment in livestock and poultry premises by use of existing systems of microclimate in agricultural enterprises in the reconstruction of existing and newly constructed pig-breeding complexes and poultry farms.



TECHNICAL DATA

Supply insulated mine	
Capacity, m^3/h	10000
Internal diameter, mm	800
Height with umbrella, mm	3000
Weight, kg, not more	60
Exhaust mine	
Capacity, m^3/h	20000
Internal diameter, mm	800
Height with umbrella, mm	3000
Weight, kg, not more	70
Supply insulated mine	
Capacity, m^3/h	2400
The cross section upper adjustable opening, m^2	800
Масса, кг, не более	15

- The use of innovative development with the use of insulating materials in the manufacture of the supply air shafts and vents valve that allows you to get rid of condensation on the inner surface in cold period of the year.
- The use the spreader to evenly distribute air, ensuring that it enters the zone of placement of animals and birds.
- The use of a protective visor air supply valve allows you to get rid of the infiltration of birds and rodents.

KOZhK

The use of computerized equipment set allows in automatic mode to produce batching of feed components, mixing, and normalized the results of the wet feed mixture at a predetermined microprocessor program in stationary cormorant on pig farms and pig farms.

EQUIPMENT FOR LIQUID FEEDING KOZHK

Designed for high-precision dosed feeding of various age groups of pigs in pig breeding complexes and farms.

TECHNICAL DATA

Performance on dry feed, t/h	from 4
The performance of liquid mixture, t/h	till 10
The length of transportation of the liquid, m	till 300
Serve pigs.	to 3600
Capacity of the mixing baths, m³	3,5; 6
Installed power, kW	20,5
The safety of the feed mixture, %	100
Weight, kg	4500

AUTOMATED STATION FOR INDIVIDUAL FEEDING SAIK

Designed for automatic feeding of brood sows according to the program and diets of individual feeding in a farm.

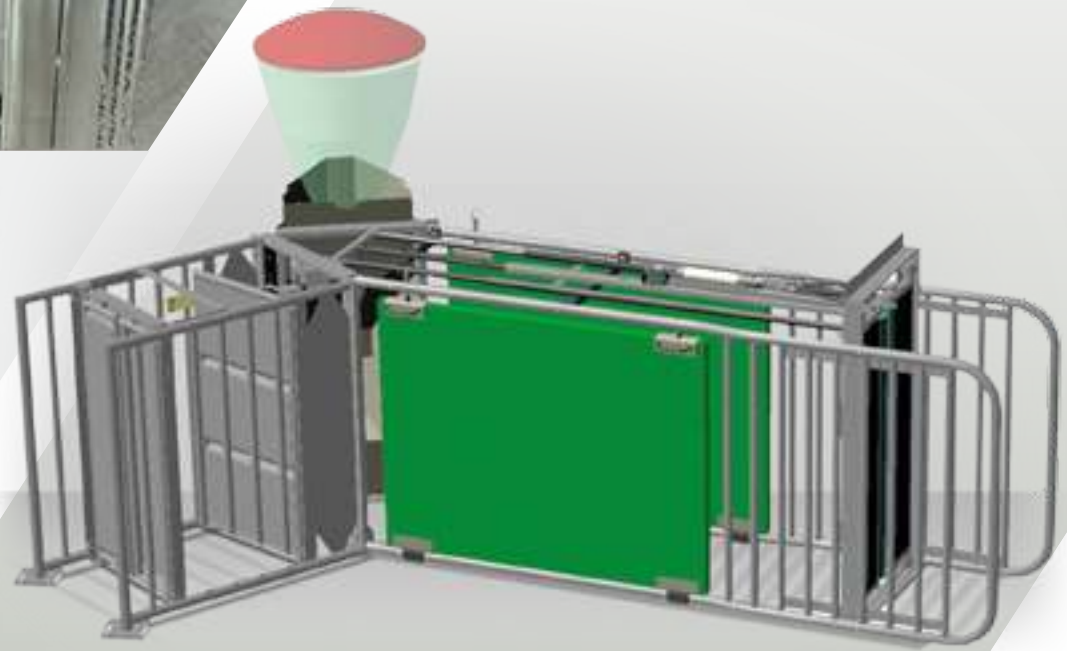
SAIK

FEATURES:

- individual feeding of brood sows according to the program;
- herd health monitoring;
- individual color marking of animals;
- effective control over each animal ration;
- data collection, archiving and analysis per animal.

ТЕХНИЧЕСКАЯ ХАРАКТЕРИСТИКА

Attended herd, head	up to 60
Number of feedboxes at feeding station	1
Feedbox capacity, l	80–120
Feeder space, mm, no over	480
Installed power, kW, max	0,61
Specific power consumption, kWh/head	0,01
Weight, kg, max	500



MOBILE LABORATORY LDB

LDB

Designed for implementation of a range of organizational and technical measures for maintaining biogas plants I operational by regular taking of technical and technological parameters of the operated equipment, forecasting its residual life and proactive performance of preventive and repair work.

APPLICATION AREA

agro-industrial enterprises exploiting biogas power complexes, services.

INSTRUMENTATION AND SPECIAL EQUIPMENT

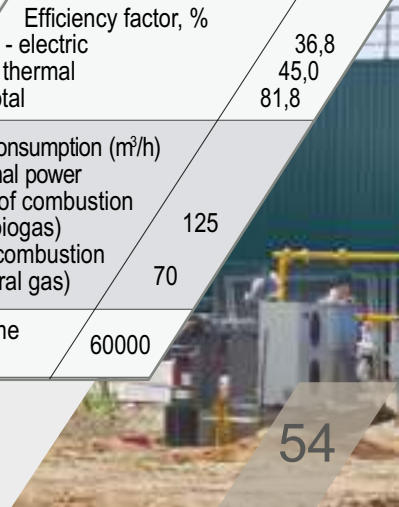
- gas analyzer
- methane leakage analyzer
- analytical scales
- pH meter
- thermal imager
- titrator
- ultrasonic Liquid Flow Meter
- hygrometer
- muffle furnace

FIRMWARE SUPPORT FOR THE BIOGAS ENERGY COMPLEX MANAGEMENT (**KOPAS SAU BU**) HAS A THREE-LEVEL STRUCTURE:

- lower level – collection and primary processing of information signals from sensors;
- mid-level – data processing and generation of control actions;
- higher level – long term archiving of technological process data.

TECHNICAL DATA

Type	mobile
Number of diagnostic parameters, at least	10
Gas fuel firing	biogas, methane
Nominal power, kW - electric - thermal	 250 280
Efficiency factor, % - electric - thermal - total	 36,8 45,0 81,8
Fuel consumption (m^3/h) at nominal power - for heat of combustion 25 MJ/kg (biogas) - for heat of combustion 35 MJ/kg (natural gas)	 125 70
Engine service time to repair, h	60000



BIOGAS ENERGY COMPLEX

Biogas energy complex in Experimental Base “Zazerje” of the Scientific-Practical Center of the National of Academy of Sciences of Belarus for Agricultural Mechanization

TECHNICAL DATA	
Electric power, kW	250
Thermal power, kW	280
Basic process raw material	cattle manure
Fermenter capacity, m^3	1600
After- digester capacity, m^3	1735

COGENERATION GAS PLANT UKG-250

SOLID RAW MATERIAL FILLER TO FERMENTER OF BIOGAS PLANT DZ-8

Hopper capacity, m^3	7,5
Efficiency, t/h	up to 1,5
Total installed power, kW	25

AUTOMATIC FLARE UAF-1

Capacity (volumetric flow rate for biogas), m^3/h	125–250
Thermal power, MW	1,4 (±15 %)
Nominal biogas pressure at input, Pa	500 (±15 %)
Working pressure in burners, Pa	10000 (±10 %)
Exploitation period, h	18 000

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