SPRING-TOOTH, HEAVY TOOTH, HEAVY TOOTH DRAG HARROWS

LIRA
LIRA XL
LARI
DINAR

LOZOVA MACHINERY

MAKE YOUR MONEY WORK!

LIRA

LEGENDARY LIRA

TRADITIONAL
and ORGANIC

Effective use of min-till and no-till farming technologies depends on the quality of crop residues contol. Keeping the residue and distributing it uniformally provides the following advantages: snow retention, retention of melt and rain water; reduction in water loss from evaporation; improving the organic composition of the soil; reduction of air and water erosion.

Applying LIRA harrow would allow not only to kill the weeds without the expensive chemicals, but also retain moisture and provide air access to seeds.

More than 16 years of successful work in the fields have made the LIRA spring harrow truly legendary! Its simplicity, reliability and the highest quality of work are familiar to farmers in Ukraine, Russia, Kazakhstan and many other countries

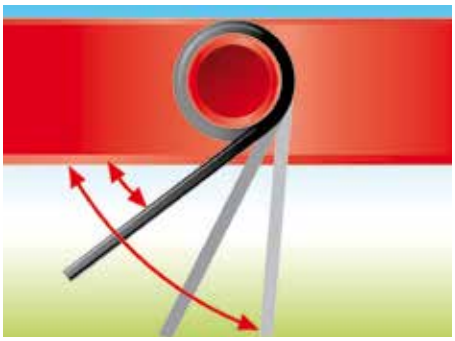
The LIRA spring harrow is applied for:

- early spring harrowing for crust destruction and encouraging the weeds germination;
- weeds destruction in the “white fiber” phase;
- moisture retention by interrupting the capillary flow from the substrate;
- even distribution of stubble remains on the field;
- incorporation of seeds and mineral fertilizers, distributed across the field;
- overall tillage when handling the fallow lands and seedbed preparation when fall-ploughing;
- windrowing of straw and hay.

15-24 m
49′ - 79′ ft

min 80 hp

max 28,8 ha/h
max 48 acre/h

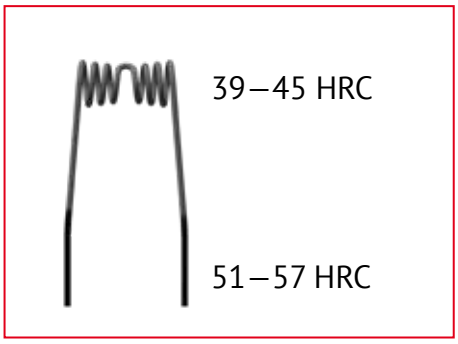


Improved tillage quality

Work sections consist of five rows of the offset spring teeth with spacing of 38 mm - 1.50'' inch between them.
Such arrangement doesn't leave non-cultivated areas on the field.
Careful cultivation is provided by the adjustable tilt angle of teeth. The teeth tilt angle is adjusted for entire section with limits from 15^0 /492' to 90^0 /2952', and interval of 15^0 /492'.
Blockage-free work of teeth and perfect loosening are provided by vibration effect.

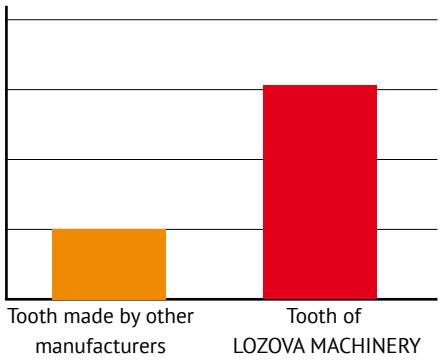
Premium class spring tooth

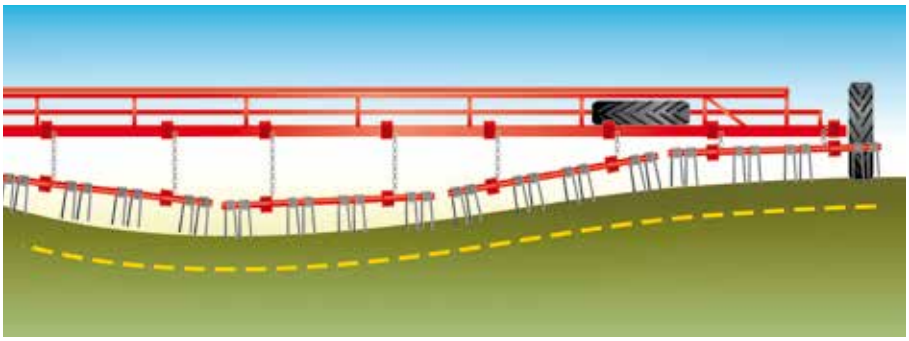
The spring tooth diameter is 10 mm - 0,39'' inch, but application of innovative hardening significantly (in 2-3 times) increases the tooth wear resistance accounting for the torque streses.



Good tooth lifetime

The spring tooth is made of high-quality special steel with special heat treatment: general bulk hardening and additional HFC hardening of ends up to 51-57 HRC.





Precise and carefull soil treatment

Having the chained individual working sections, the LIRA spring harrow perfectly follows any field contours in spite of its wide working width.

Special agricultural low-pressure tires almost fully eliminate the risk of damage to plants. Also, these tires eliminate overcompacting of the soil and don't leave tracks.

Uniform distribution of crop residues

Regular combine straw choppers with wide headers do not distribute the straw optimally. This leads to broken seedlings, uneven rippening and significant deterioration of the harvesting quality. LIRA harrows solves this issue by uniformally distributing the crop residues.

Forged cross

Forged crosses compared to welded ones provide high durability and reliability.

Simple folding-unfolding

One tractor driver can fold and unfold the harrow due to design of frame and hitch.

For rapid folding/unfolding the LIRA harrow is equipped with transport wheels with adjustable toe angle

Costs of cultivation of 1 ha - 2.47 acre with the LIRA

(amortization charges + fuel consumption + repair + maintenance)

Technological advantages complex

Due to simultaneous incorporation of the applied spray material, the REAL unit allows achieving the most effective incorporation and minimizing of the agent consumption, as well as environmental impact (due to lower application rate), and reducing the number of the unit passes.

REAL is equipped with a brake system.

PTO drive

For the uniform distribution of the spray material along entire working width, the REAL module is assembled with the ARAG high-quality control panel and the Annovi Reverberi axialpiston pump with tractor PTO drive.

The unit is equipped with a brake system which enhances the operating safety.

Complex for higher productivity

The REAL unit can be easily mounted to any other standard LIRA springtooth harrow, as well as with spring harrows from other manufacturers, because it is fixed to frame by U-bolts.

REAL

UNITS FOR SPREADING OF PLANT PROTECTING AGENTS AND COMPLEX FERTILIZERS

Advantages LIRA M

Telescopic rigid drawbar for prevention of semi-frames toe-in during quick turns of transport.

Hydraulically controlled transport wheel for simple folding/unfolding.

Durable teeth

Zero-maintenance conception due to use of lubrication-free crosses.

Tooth harrows LIRA of the "M" series have a reduced transport width of 3 meters - 9' ft corresponding to traffic regulations of the EU countries

3 m
9' ft

TECHNICAL DATA

NEW

	LIRA-15	LIRA-24	LIRA-21M	LIRA-24M	REAL-15+ LIRA-15	REAL-24+ LIRA-24
Working width, m; ft	15 /49'	24 /79'	21/68'	24/78'	15/49'	24/79'
Tractor power, hp.	min 80	min 130	min 110	min 130	min 80	min 150
Tractor power, hp.	trailed		trailed		trailed	
Basic weight, kg; lbs	2030 /4.480	3160/6.944	2950/6.503	3280/7.231	1920/2.028	2200/4.497
Number of working tools	200	320	280	320	30	48
Teeth spacing, mm; inch	38 /1.50''		38 /1.50''		—	
Tank volume, m^3	—		—		2,5	5,0
Teeth tilt angle, ^{0}	15, 30, 45, 60, 75, 90		15, 30, 45, 60, 75, 90		—	
Pump performance, l/min.	—		—		185	250
Operating depth, cm; inch	max 9/3.54''		max 9/3.54''		—	
Operating speed, km/h; mph	8...15 /5-9		8...15 /5-9		8...15/5-9	
Efficiency, ha/h	max 18	max 28,8	max 24,8	max 28,8	max 18	max 28,8
Fuel consumption, l/ha; gal/ac	0,8...1,5 /0.9-0.16		0,8...1,5/0.9-0.16		1,0...1,8	
Transport dimensions (length x width x height), mm; inch	10455x 3710x 2390 411''x 146''x 94''	17170x 4400x 2390 675''x 173''x 97''	16080x 3000x 2400 633''x 118''x 94''	17580x 3000x 2400 692''x 118''x 94''	13876x 4200x 2460 546''x 165''x 96''	21600x 4400x 2460 850''x 173''x 96''

LIRA XL

NEW LEGEND

TRADITIONAL
and ORGANIC

The base of LIRA XL is a frame with five rows of teeth, which are 16 mm - 0.63'' inch in diameter and 762 mm - 30'' inch in height, mounted on a parallelogram.

One of the unique features of the LIRA XL is possibility to perform 5 different operations in one pass. For example, simultaneous early spring harrowing and loosening of topsoil to a depth of 2-10 cm - 0.79''-3.94'' inch does the following:

- keeps moisture;
- encourages germination of weeds to be destroyed then;
- levels the soil and prepares it for seeding;
- incorporates fertilizers and pesticides;
- uniformly distributes stubble remains.

The main advantage is special suspension of separate work sections, which allows to keep contact with a rough soil. The contour following is better compared to sections on leaf springs. With this harrow farmers receive a uniform soil and good covering of seeds.

15-21 m
49′ - 69′ ft

min 160 hp

max 25,2 ha/h
max 63 acre/h

Suspension of work sections

Parallelogram suspension of separate work sections allows to keep contact with a rough soil. It provides perfect contour following alongside the whole section width and uniform distribution of load per each spring block.

Adjustable attack angle

An optimal harrowing is provided by adustable teeth angle.
Attack angle can be adjusted through the whole section within limits 45-90˚.

Pressure on the soil

A spring block eliminates undesirable vibrations of sections (bouncing) at high speeds, and adjusts a pressure of the work section springs on the soil from 400 to 860 kg (881.84 to 1895,98 lbs).

Cable tightening of sections

Flexible cables allow to simplify the design of the harrow, ensure wings rigidity and reduce stresses. They provide perfect turning maneuvering and contour following alongside the whole harrow width.

Durable teeth

Spring tooth is made of high quality special steel with double hardening. The tooth diameter is 16 mm - 0.63'' inch, but due to innovative technology the wear resistance is increased in two-three times with a high strength in an area subject to the torque stresses.

Forged cross

Forged crosses, in comparison to welded ones, provide higher durability and reliability.

Convinience

LIRA XL is quickly transferred from the transport to the working position and back. Transport wheels are designed for public roads and have adjustable turn angle, which ensures better maneuvering when moving or folding/unfolding. The two positions of the axles of the wheels are adapted to high speed.

LIRA XL and LARI have unified frame design which allows to transfer heavy tooth harrow into drag harrow and vice versa.

Thus, by buying one machine and a special set of parts, the farmer gets two machines for the price of one.

Even soil, uniform distribution of crop residues, safe seeds covering.

TECHNICAL DATA

	LIRA XL-15	LIRA XL-21
Working width, m; ft	15 /49'	21/69'
Tractor power, hp	min 160	min 300
Coupling with tractor	trailed	trailed
Basic weight, kg; lbs	5000/12.533	7905/17.427
Teeth spacing, mm; inch	60/2.36''	60/2.36''
Teeth tilt angle, ^{0}	45-90	45-90
Diameter of a spring tooth, mm; inch	16/0.63''	16/0.63''
Operating depth, cm; inch	2—10/0.79''-3.94''	2—10/0.79''-3.94''
Operating speed, km/h; mph	max 15/12	max 15/12
Efficiency, ha/h	max 12	max 25,2
Fuel consumption, l/ha; gal/ac	2-3/0.2-0.3	2-3/0.2-0.3
Transport dimensions (length x width x height), mm; inch	13160 x 4012 x 3995 518''×158''×157''	16160 x 4012 x 3995 636''×158''×157''

LARI

HEAVY TOOTH DRAG HARROW

PERFECTLY EVEN FIELD

TRADITIONAL and ORGANIC

LARI drag harrow is a universal, simple and reliable implement with high efficiency and low fuel consumption.

Main application - soil loosening and levelling, seddbed preparation, moisture retention and weeds destruction.

LARI makes it possible to start your field works earlier than other machines, in any weather conditions. For example, unlike a regular seedbed cultivator, the drag harrow is almost insensitive to soil moisture, because there is simply nothing to stick and block due to due to its efficient design.

Flexible connection of the harrow sections makes it possible to follow the field surface, while the teeth, made of high-quality material, will ensure effective cultivation to a depth of up to 8 cm - 3.15'' inch.

LIRA XL and LARI have unified frame design which allows to transfer heavy tooth harrow into drag harrow and vice versa.

Thus, by buying one machine and a special set of parts, the farmer gets two machines for the price of one.

6,8-21 m
22′ - 69′ ft

min 80 hp

max 25,2 ha/h
max 63 acre/h

Uniform distribution of crop residues

Uniform distribution of crop residues is an important precondition of operation quality of the machines that work the soil further.
Hinged design enables distribution of any amount of crop residues even after the first pass.

Durable rhomb-shaped tooth

The most durable tooth on the market is made of special spring steel with high surface hardness (55...60 HRC).

Adjustable attack angle

Two positions of teeth (active or passive) are suitable for any working conditions at depth from 3 cm to 8 cm - (1.18 - 3.15'' inch). Sections, suspended on chains, provide perfect field contours following.

Contour following by separate sections is carried out due to their chains suspension .

LARI

LIRA XL and LARI have unified frame design which allow to transfer heavy tooth harrow into drag harrow and vice versa. Thus, buying one implement and special set of parts the farmer gets two implement for price of one.

TECHNICAL DATA

	NEW		NEW	
	LARI-7	**LARI-15**	**LARI-18**	**LARI-21**
Working width, m; ft	6,8	14,6/49'	17,8	21/69'
Tractor power, hp	min 80	min 160	min 240	min 300
Coupling with tractor	semi-trailed	semi-trailed	semi-trailed	semi-trailed
Weight, kg; lbs	3060/6.746	5170/11.397	5850/12.897	7095/15.641
Teeth angles^0	22^0;40^0	22; 40	22^0;40^0	22; 40
Working depth, cm; inch	8/3.15''	8/3.15''	8/3.15''	8/3.15''
Working speed, km/h; mph	8...15/5...10	8...15/5...10	8...15/5...10	8...15/5...10
Efficiency, ha/h	max 8,1	max 17,5	max 21	max 25,2
Fuel consumption, l/ha; gal/ac	2-3/0.2-0.3	2-3/0.2-0.3	2-3/0.2-0.3	2-3/0.2-0.3
Transport dimensions (length x width x height), mm; inch	4500 x 2560 x3550 177''x 100''x139''	11650 x 3870 x 3610 458''x 152''x 142''	11650 x 3870 x 3610 458''x 152''x 142''	16590 x 3870 x3610 653''x 152''x142''

DINAR

AERATE THE SOIL

TRADITIONAL
and ORGANIC

DINAR intensive rotary harrows can be used both for conventional and conservation tillage technologies. They are designed for overall and inter-row cultivation of various cereal and tilled crops, as well as vegetables on all types of soil. These harrows are especially effective in destroying heavy soil crusts, because DINAR intensively mixes and crumbles the soil to a depth of 5 cm.

Depending on tillage type – shallow (fast and extensive) or deep and intense, you just need to set the appropriate force on the double spring to adjust the depth of penetration. And increased speed will help to crumble the soil more intensively with its aeration.

DINAR has an increased durability due to special design of the frame, which is made of a special profile, rotary casted stars, and spring-mounted tines. Due to a high frame the harrow works with high seedlings without any damage to them.

DINAR can work with any tractor with power over 110 hp.

6,2 m-12,9 m
20' - 42' ft

min 80 hp

max 20,6 ha/h
max 50 acre/h

Enhanced star tool

Available two variants of star with diameter of 534 mm:

1) ductile iron casting - durable versatile star for all kinds of works;
2) assembly with forged teeth - for stony soils, teeth are changable.

Careful work through the seedlings

The harrow is well adapted both for overall and inter-row tillage, and able to work when the crops are already grown. With minimum inter-row distance the DINAR works from 2 leaves to 20 cm of the plant's height. At bigger inter-row distance you can work with height of up to 60 cm.

Additional control of penetration

The implement can be additionally equipped with support wheels to adjust depth of stars penetration into the soil.

The main advantage (and fundamental difference) of working tools with an oblique tooth compared to a straight tooth is in the geometry of penetration into the soil. Thus, for work through vegetative plants the stars have a bend in the direction of movement and provide vertical penetration into the soil, with minimal damage to plants. If you set the tooth bend against the direction of movement, then the intensity of tillage significantly increases. This is suitable for cultivation of stubble or other works on overall tillage.

Simple and fast mounting of tines

The tines are mounted by one bolt (“fast mounting”). Thus, the less time taking mounting – the less costs for changing tines depending on different inter-rows.

Two-stage adjustment of pressure

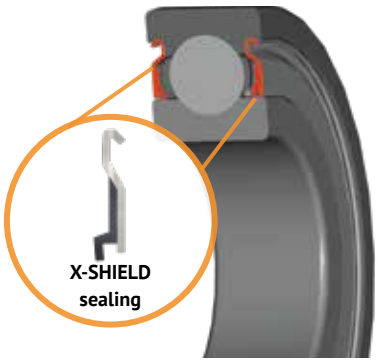
Precise tines pressure on a soil is provided by two springs and two-stage compression, which keeps required depth during work.

No gaps

Balance mounting of stars provides constant contact with a soil, reducing loads on bearing unit and improving the harrowing quality.

Simple transportation

Hydraulically folded frame ensures the harrow compactness in transport position and minimizes loads on the tractor linkage. Transport width is 3 m.



Unique reinforced bearings

There are two reinforced ball bearings with X-SHIELD seals. Due to high accuracy of manufacture the level of noise and vibration is significantly reduced, increasing service life. Additional remote washer protects bearing from dust and stubble remains.

Possible mounting of the spring harrow

An additional spring harrow can be mounted in order to remove weeds from the soil and to crumble clods with additional soil loosening

TECHNICAL DATA		NEW
	DINAR-6,4	**DINAR -12,8**
Working width, m; ft	6,2/20'	12,9/42'
Tractor power, hp	min 80	min 130
Coupling with tractor	trailed	semi-trailed
Weight, kg; lbs	1245-1700 2.744-3.747	4600/10.141
Number of tines, pcs	31	65
Number of stars, pcs	62	130
Number of wheels, pcs	2	4
Operation depth, cm; inch	max 5/0.16''	max 5/0.16''
Operation speed, km/h; mph	max 20/12	max 20/12
Efficiency, ha/h; acre/h	max 9,9/24	max 20,6/50
Fuel consumption, l/ha; gal/ac	2,5/0.2	2,5/0.2
Transport dimensions (length x width x height), mm; inch	1620 × 3060 × 3060 63''×120''×120''	7125 x 3000 x 2310 280''×118''×90''

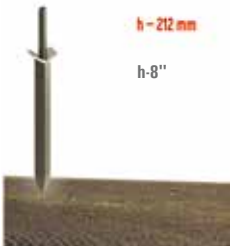
COMPARISON OF TOOTH AND ROTARY HARROWS

LIRA

SPRING-TOOTH HARROW

LIRA XL

HEAVY TOOTH HARROW



LARI

DRAG HARROW

Performed operation	LIRA	LIRA XL	LARI
Cereals stubble cultivation	—	🌾🌾	—
Moisture retaining in spring on fallow land	🌾	🌾🌾🌾	🌾🌾🌾
Moisture retaining on winter crops	🌾🌾🌾	—	—
Destruction of weeds in the “white thread” phase	🌾🌾🌾	—	—
Seedbed preparation on the previously ploughed soil	🌾	🌾🌾	🌾🌾🌾
Inter-row harrowing	—	—	—
Soil aeration through sprouts	🌾🌾	—	—

🌾🌾🌾 perfectly suitable 🌾🌾 optimally suitable 🌾 suitable — not suitable