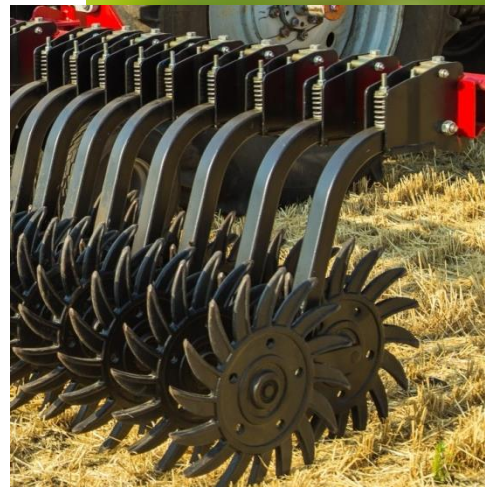
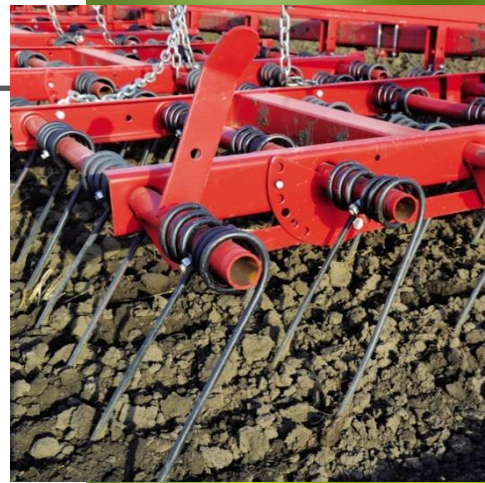


Comparison of tooth and rotary harrows



**LOZOVA
MACHINERY**



LIRA SPRING-TOOTH HARROWS

LOZOVA  MACHINERY



15 m



24 m



General construction of the harrow:

- harrow consists of trailed unit (hitch frame), central frame and hinge joined side frames;
- sections with working tools in form of spring tooth are chained separately to pipe-form frames;
- design of frame and trailed unit enables one tractor driver to fold and unfold the harrow

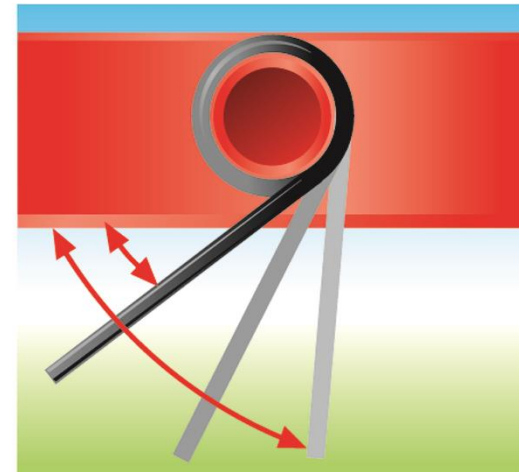
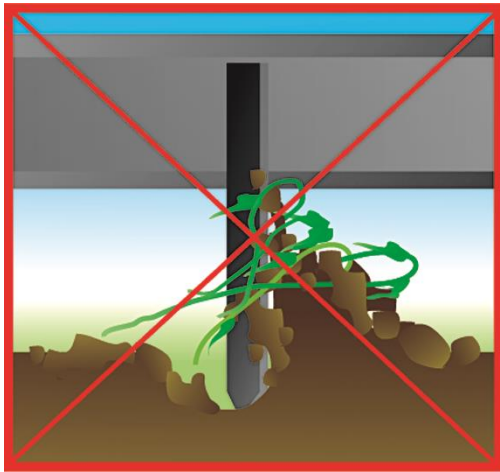


Construction of working sections:

- working sections consist of five rows of the offset spring teeth with spacing;
- the teeth tilt angle is adjusted for entire section with limits from 15° to 90°, and interval of 15°

Constructive advantages:

- position of spring teeth provide high quality of tillage without non-cultivated areas
- adjustable teeth tilt angle changes the pressure on the tooth and the tillage depth from 1 to 9 cm



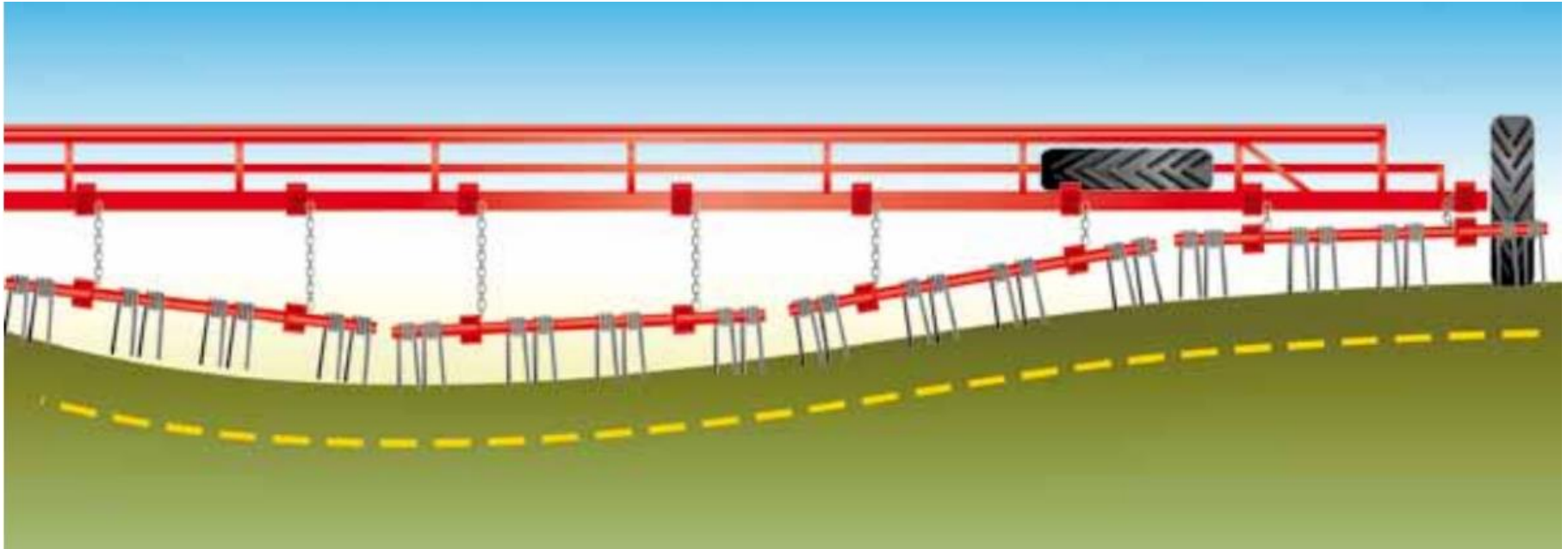
Constructive advantages of LIRA:

- high quality of harrowing due to vibration effect of flexible teeth;
- blockage-free teeth due to vibration effect of flexible teeth;
- gentle tillage due to changing of teeth tilt angle



Spring tooth:

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



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

Application



The early spring harrowing for crust destruction and encouraging the weeds germination.

Moisture retention by means of interruption of capillary flow from the substrate.



Application

Weeds destruction in the “white thread” phase.

The mechanical mean of weeds control is more profitable and more ecological by using LIRA harrow.

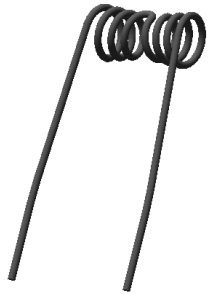
Even distribution of stubble remains on the field in order to avoid uneven plants growth.

Incorporation of seeds and mineral fertilizers distributed across the field.



LIRA SPRING-TOOTH HARROWS

Technical and economic features



Ø 10 mm



8...12 km/h
7,6...21,0 ha/h



from 5 hp/1m



0,8...1,5 l/h



LIRA XL – HEAVY TOOTH HARROWS

LOZOVA  MACHINERY



15 m

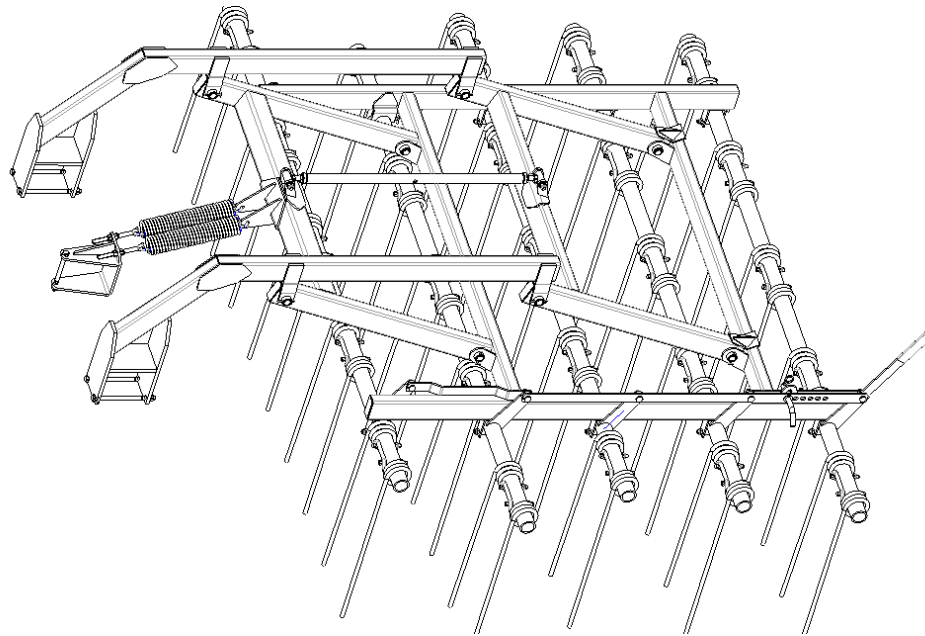


21 m



General construction of the harrow:

- harrow consists of trailed unit (hitch frame), central frame and hinge-joined side frames;
- sections with working tools in form of spring tooth are chained separately to pipe-form frames;
- design of frame and trailed unit enables one tractor driver to fold and unfold the harrow

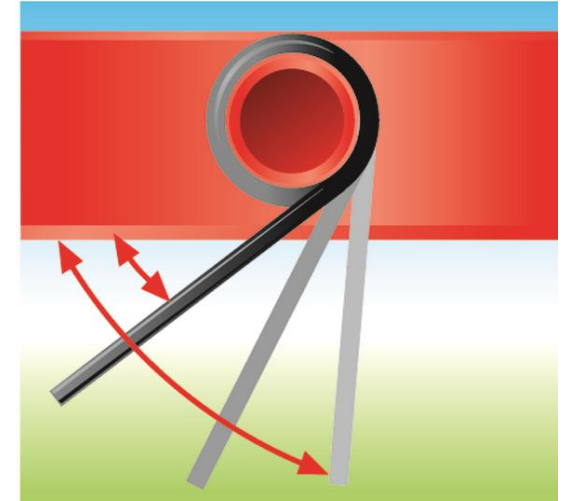
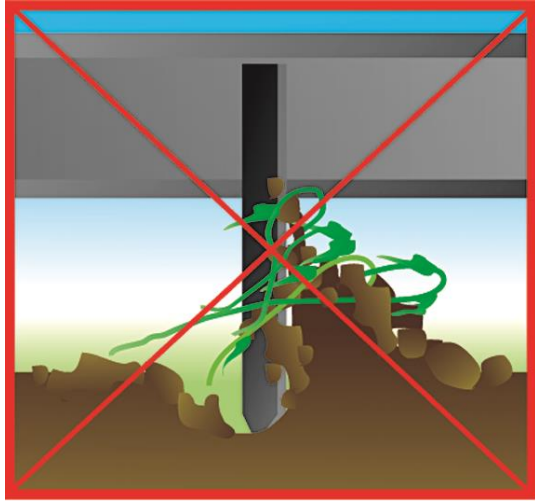


Construction of working sections:

- working sections consist of five rows of the offset spring teeth with spacing;
- the teeth tilt angle is adjusted for entire section with limits from 45° to 90° , and interval of 15°

Constructive advantages:

- position of spring teeth provides high quality of tillage without non-cultivated areas;
- adjustable teeth tilt angle changes the pressure on the tooth and the tillage depth from 2 to 10 cm
- the spring-adjusted pressure of sections allows to adapt the harrow for light as well as heavy tillage.

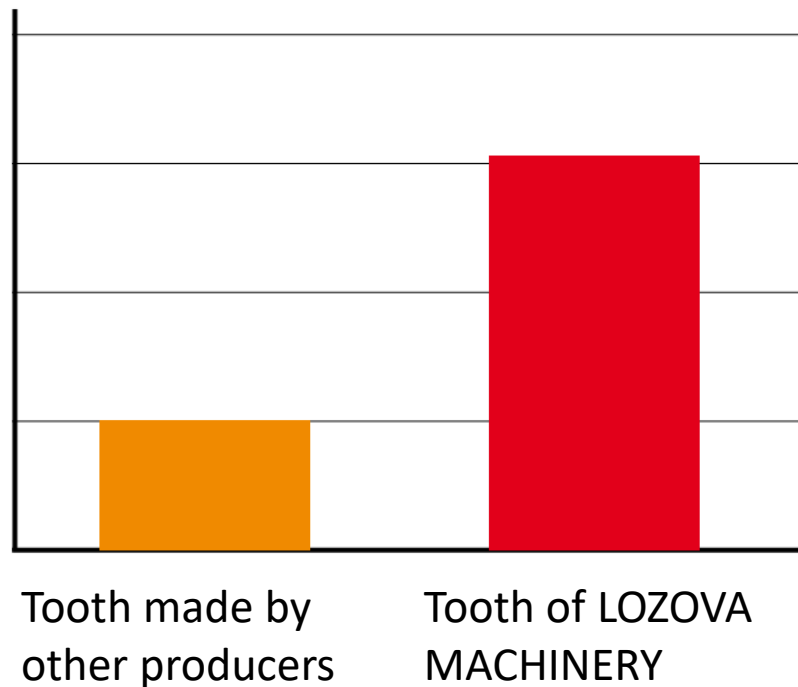


Constructive advantages of LIRA:

- high quality of harrowing due to vibration effect of flexible teeth;
- blockage-free teeth due to vibration effect of flexible teeth;
- controlled intensiveness of tillage provided by changing of teeth tilt angle and pressure of sections to the soil.



Lifetime until the tooth working part wear



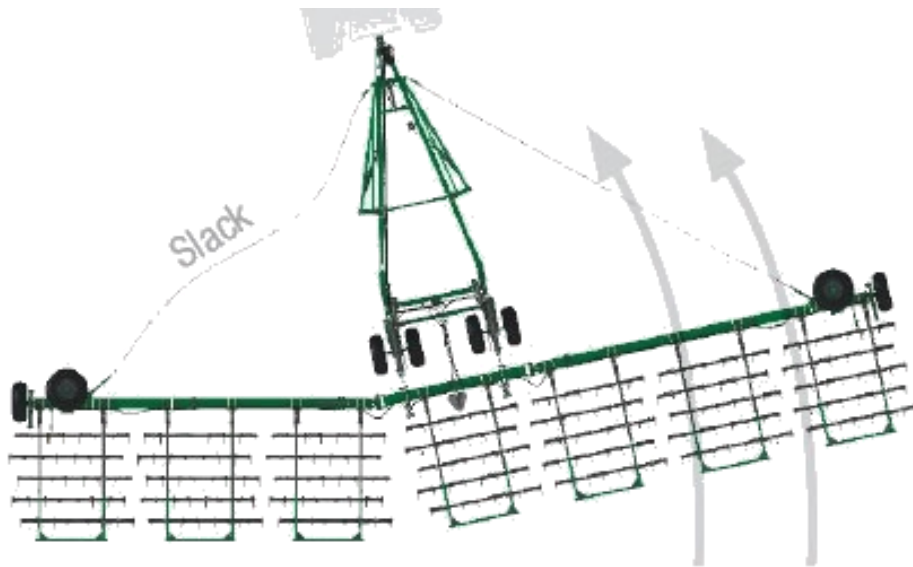
Spring tooth:

The tooth of harrow is 16 mm in diameter and 820 mm in height (from the axis 762 mm) is made of high quality special steel with special heat treatment, general bulk hardening, additional **HFC hardening of ends up to 51...57HRC.**

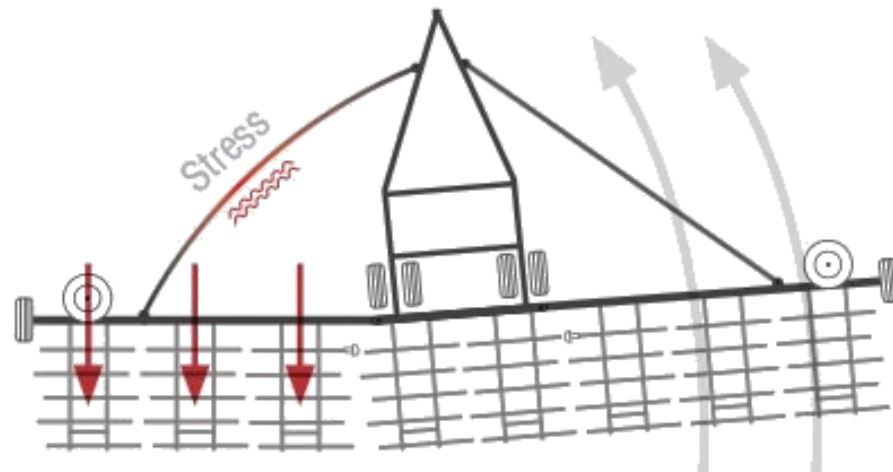


Parallelogram suspension of separate work sections allows to keep contact with a rough soil. So the working width and the field contouring are higher than with the leaf spring suspended sections.

It is possible to adjust the pressure of springs on the field surface due to wrap springs.

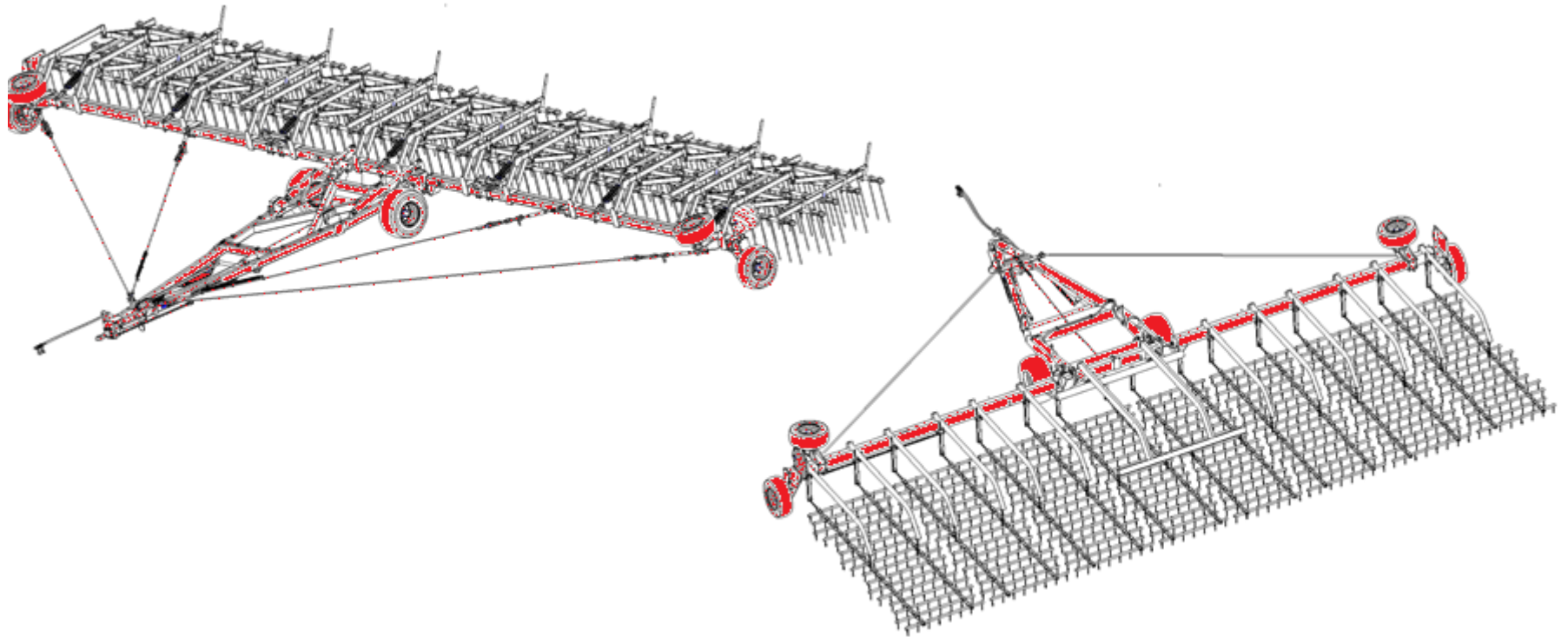


CABLE DESIGN



TUBE DESIGN

The cables are used for additional rigidity of the wings, that in contrast to rods, allow to provide perfect turning maneuvering and reduce stresses affecting the frame.



The LIRA XL and LARI implements have unified main frame constructions that make it possible to transfer heavy spring harrow into drag harrow and vice versa.

Actually, if you buy ONE implement and special re-equipment set, you can get TWO implements and save your money.

Application

Seedbed preparation on the previously ploughed background.

Early spring harrowing for encouraging the weeds growth and moisture retaining

Cereals stubble cultivation



Application

Even distribution of stubble remains on the field in order to avoid uneven plants growth.



Incorporation of seeds and mineral fertilizers distributed across the field



LIRA XL – HEAVY TOOTH HARROWS

LOZOVA  MACHINERY

Технико-экономические характеристики



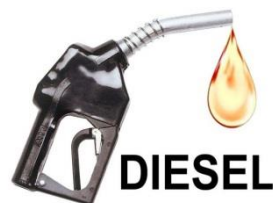
Ø 16 mm



8...17 km/h
6,1...19,3 ha/h



from 11 hp/1m



1,8...4,0 l/h



LARI – DRAG HARROWS



15 m

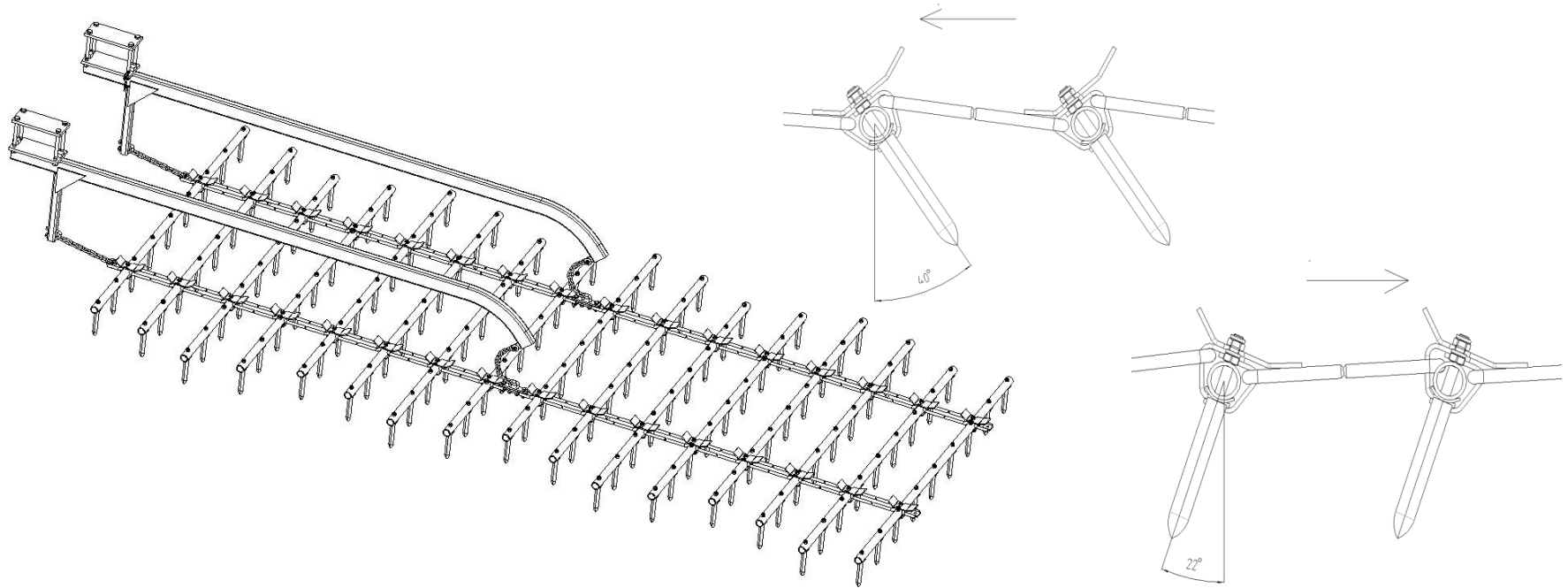


21 m



General construction of the harrow:

- harrow consists of trailed unit (hitch frame), central frame and hinge-jointed side frames;
- sections with working tools in form of spring tooth are chained separately to pipe-form frames;
- design of frame and trailed unit enables one tractor driver to fold and unfold the harrow



Construction of working sections:

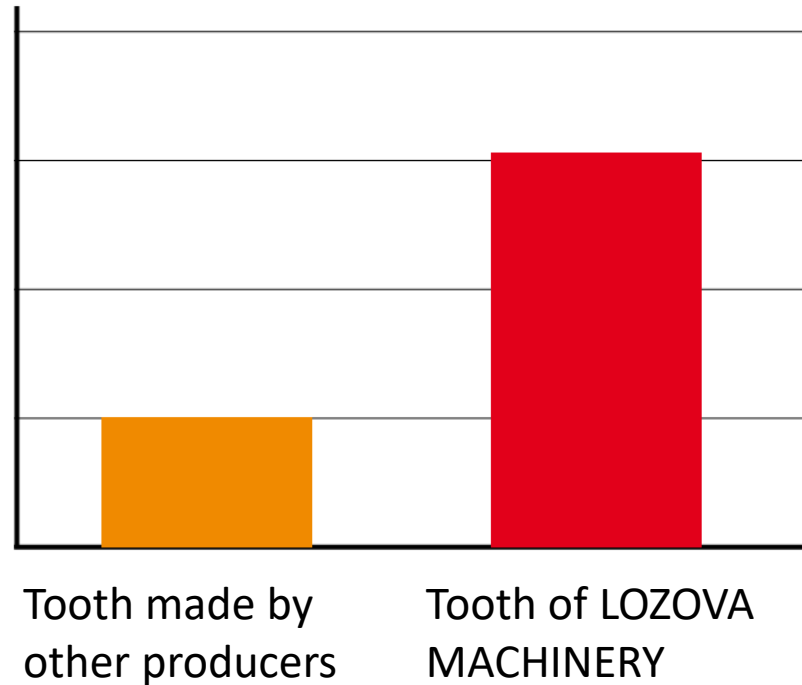
- working sections consist of sixteen offset teeth rows set on the shafts with spacing;
- there are two variants of tilt angle depending on the sections movement direction;

Constructive advantages:

- position of spring teeth provide high quality of tillage without non-cultivated areas;
- adjustable teeth tilt angle allows to control intensity of tillage depending on the task



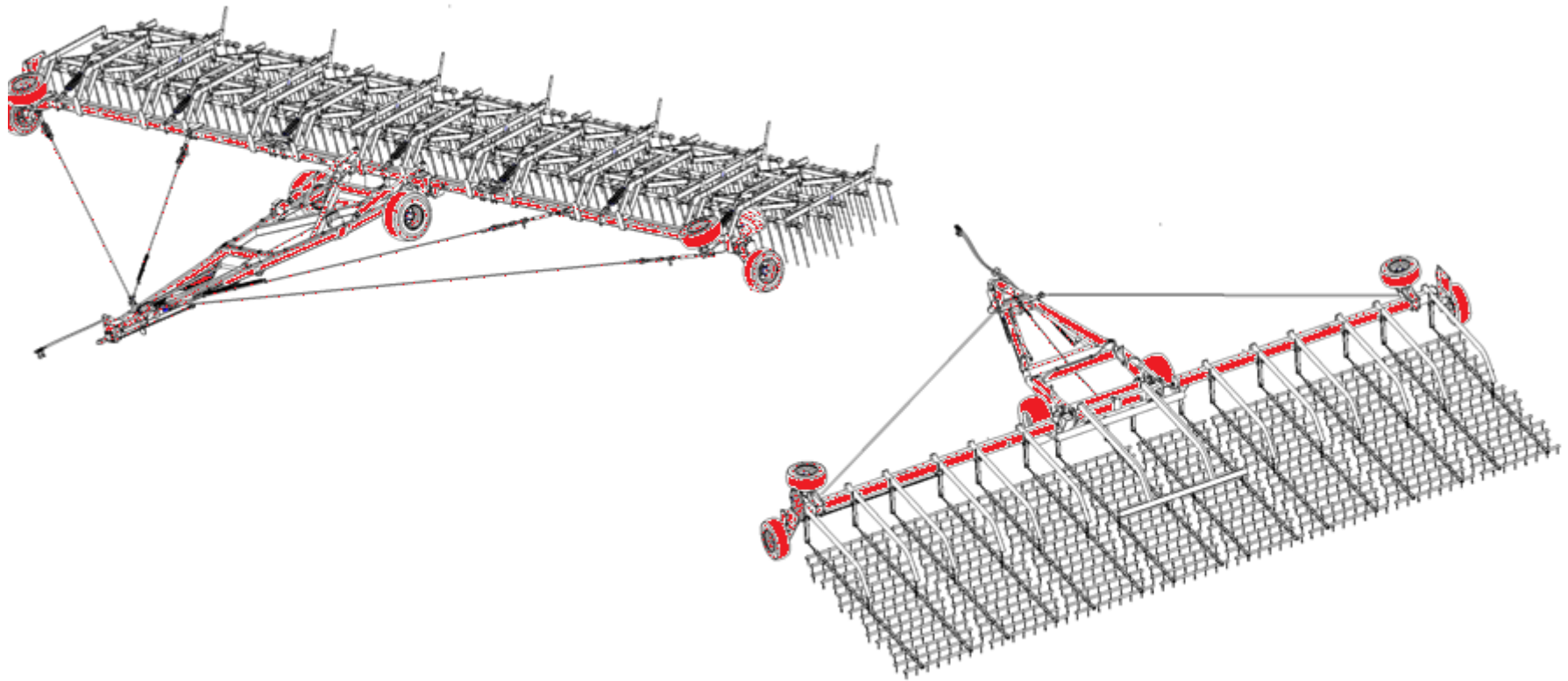
Lifetime until the tooth working part wear



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



Suspension of separate work sections on chains allows to keep contact with a rough soil.



The LIRA XL and LARI implements have unified main frame constructions make it possible to transfer heavy spring harrow into drag harrow and vice versa.

Actually, if you buy ONE implement and special re-equipment set, you can get TWO implements and save your money.

Application



- Seedbed preparation on the previously ploughed background.
- Moisture retaining.
- Destruction of weeds in the “white thread” phase

Технико-экономические характеристики



17 x 24 mm



8...17 km/h
5,5...18,3 ha/h



from 11 hp/1m



1,8...4,0 l/h



DINAR – ROTARY HARROWS

LOZOVA  MACHINERY



6,4 m



General construction of the harrow:

The harrow consists of central frame with two hydraulically foldable side semi-frames of special shape and joined by brackets working tines with stars. The transport width is 3 m.



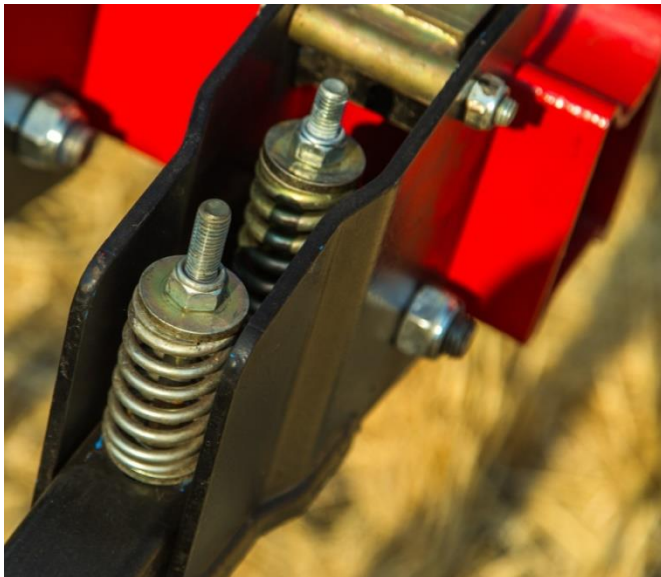
Design of harrow allows to set working tines both for overall and inter-row harrowing on the tilled crops.



Harrow is equipped with additional support wheels which help to control penetration of stars into the soil.



Each tine is mounted to the frame by one bolt. Such fast mounting reduce efforts when changing tines for different inter-rows.

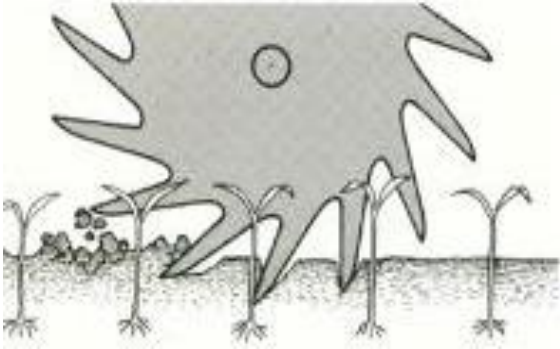


Precise tines pressure on a soil is provided by two springs and two-stage compression, which keeps required depth during work.

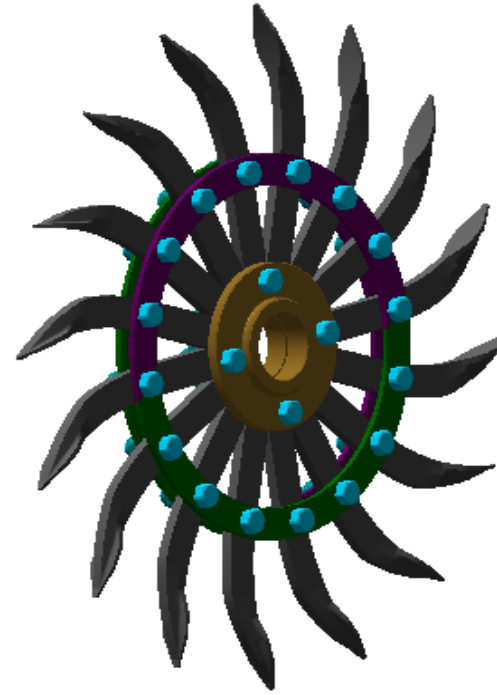
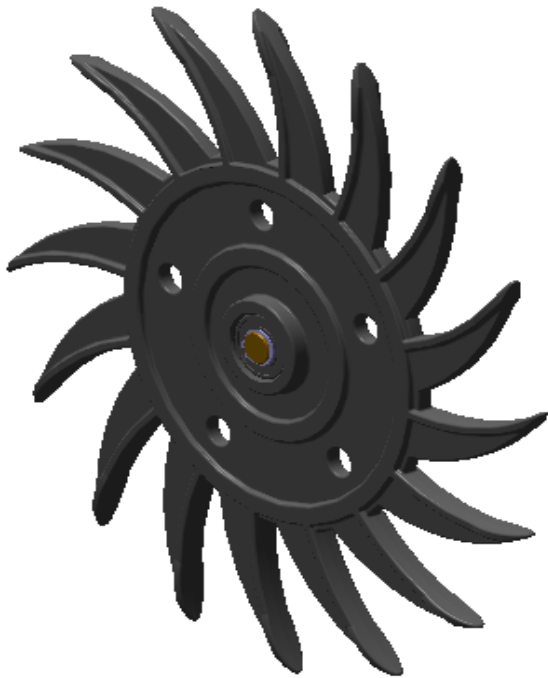


Balance mounting of stars provides contact with a soil, reducing dynamic loads on bearings.

The special form of tooth top provides better tillage.



The star with oblique tooth, depending on chosen mounting, provides vertical tooth penetration in the soil with “micro-explosion” with minimum damage to plants and saturation the soil with oxygen as much as possible, or increased intensity of effect on the soil for more intensive tillage.



Two variants of the star with diameter of 534 mm:

1. star is made of high-strength cast iron – powerful universal star for all work types;
2. built-up star with forged teeth (planned for spring 2018) – for work on rock soil with possibility to change of separate teeth.



For additional weeds destruction in the “white thread” phase, DINAR is equipped with spring harrow as an option.

Application



Preemergence and postemergence harrowing for moisture retaining.

Application



Soil aeration

Технико-экономические характеристики



Ø 534 mm



10...20 km/h
4,1...9,0 ha/h



from 3,5 hp / 1 tine



1,7...3,0 l/h



TOOTH AND ROTARY HARROWS

LIRA vs LIRA XL vs LARI vs DINAR

Prior use

Performed operation	LIRA	LIRA XL	LARI	DINAR
Cereals stubble cultivation	--	+	--	--
Moisture retaining in spring on fallow land	0	++	++	--
Moisture retaining in winter on winter crops	++	--	--	+
Destruction of weeds in the “white thread” phase	++	--	--	0
Seedbed preparation on the previously ploughed soil	0	+	++	--
Inter-row harrowing	--	--	--	+
Soil aeration through sprouts	+	--	--	++

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Stubble cultivation

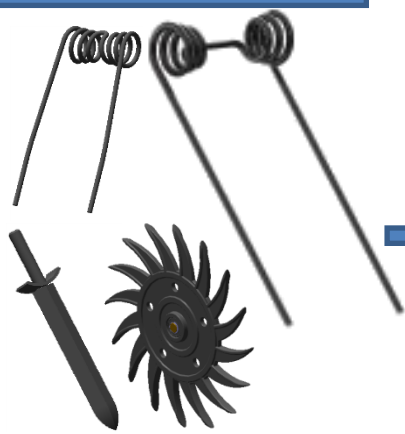
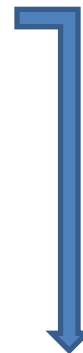


**Tillage/
Deep loosening**

Seedbed preparation

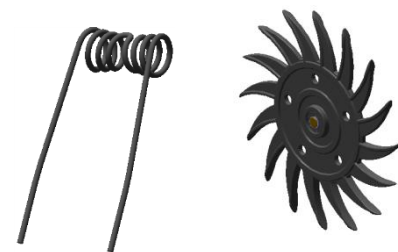


Seeding

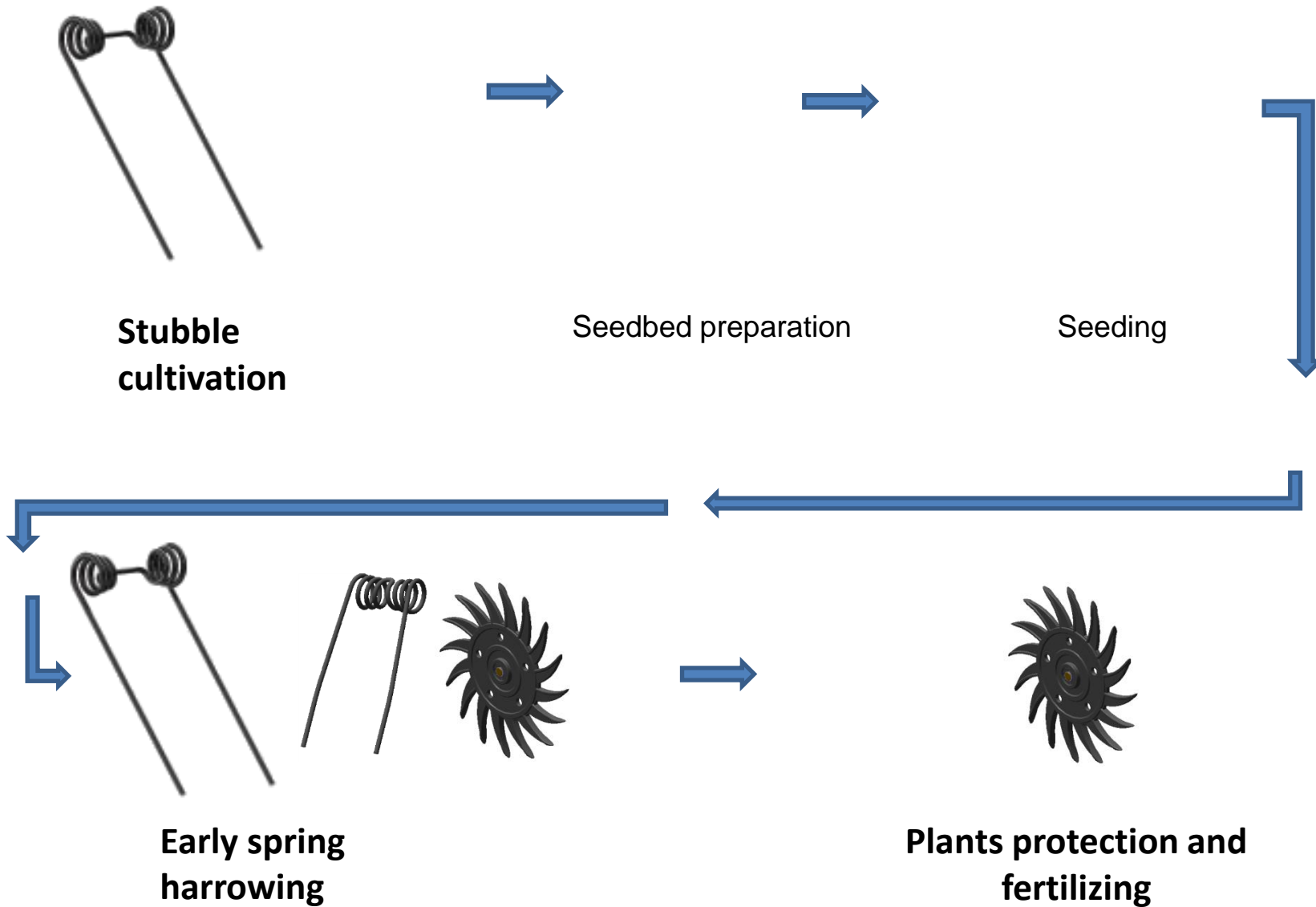


Seeding packing

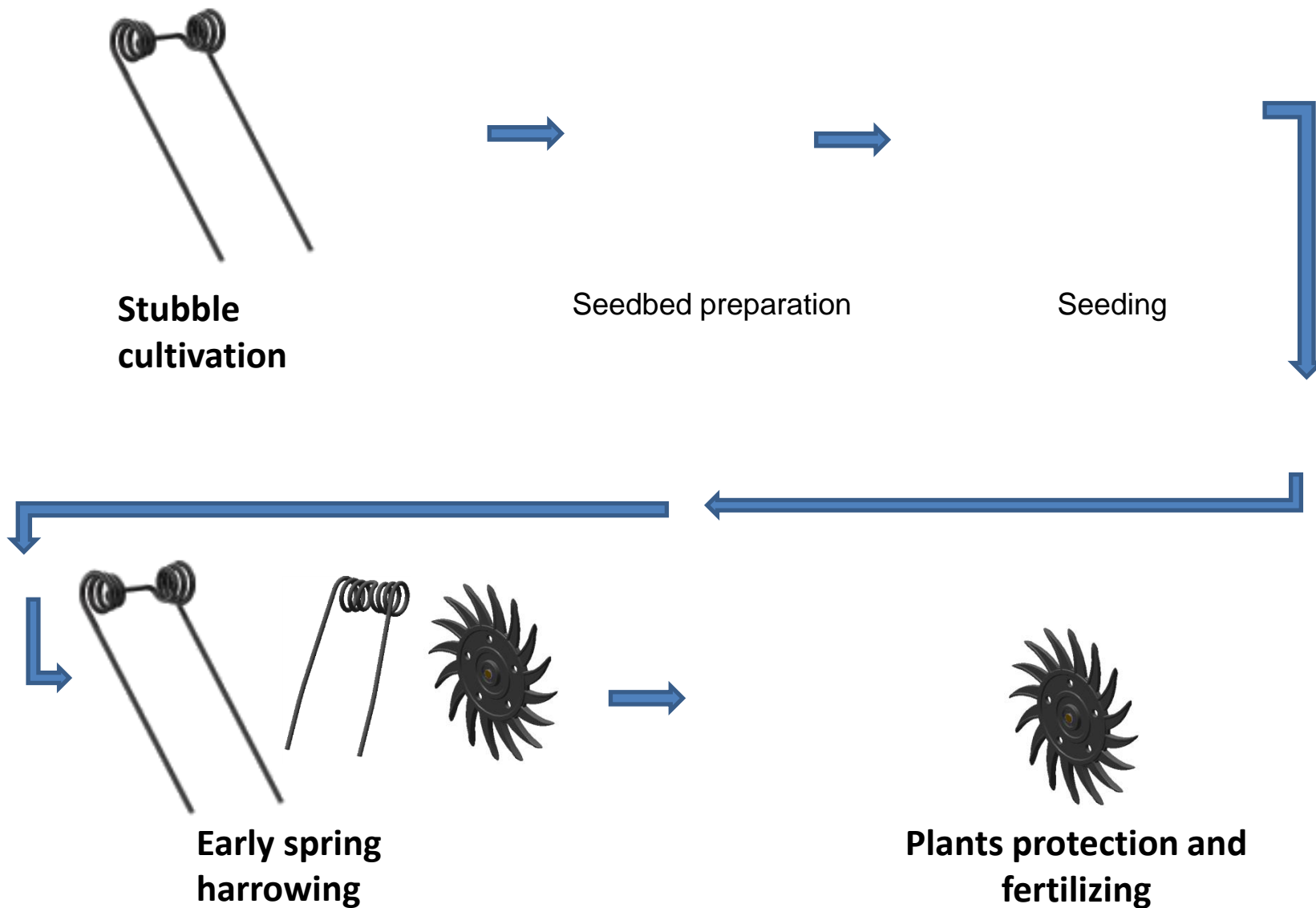
Early spring harrowing



Plants protection and fertilizing



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