

April 2022

## Hello Friends and Happy Holidays,

This year, too, we sowed maize for forage. Over the past two weeks, the Field Crops team has been working from morning to evening to develop a sowing layout and protocol into the biomass of service crops (service crops = cover crops). A presentation documenting the challenge is attached (thanks to Yossi Kashti for his help in editing the presentation). Hopefully, I haven't forgotten anyone, so a big thank you to the entire team involved in the operation: Yossi Kashti, Asher Levy (Agricultural Engineering), Zohar Ben-Simhon, Muhammad Sa'ida, Evyatar Asaf and Ronen Kfir (Newe Ya'ar), Eran Gabbay (Hazorea Field Crops), Gil Eshel, Gilad Shalev, Alon Maor (Erosion Research Station and the Soil Conservation Division), Or Ram (Ministry of Agriculture Extension Service) and Yoram Steinberg (Valley Farmers Center).

The presentation tells the story. I will only add that it is possible to talk endlessly about Conservation Agriculture, but only when you become exposed to the challenge on a real scale do you begin to understand the enormous complexity of the matter.

Beyond the challenge, the dedication to the mission and the exceptional cooperation between the members, each with his experience and expertise, remind us again of the strength and uniqueness of the platform we established in the Model Farm.

Finally, a few updates regarding the dissemination of knowledge: Remember the interesting webinar we held a year and a half ago following the content of the movie Kiss-The-Ground?

We recently uploaded a new version to YouTube that includes English subtitles (Thanks, Osnat Navon, for professional work!). Here is the new link: <https://youtu.be/CNK5b5WzHaY>

Also, an opportunity to thank Roey Posmanik and Ronen Kfir, who have been updating the site more frequently: <https://www.modelfarm-aro.org>. And last but not least... Gadi Kini from the private sector, who has been keeping in touch with us for a long time, invests great efforts in connecting Israel's interested parties in the field of Regenerative

Agriculture. Recently (on March 13), he initiated an informal meeting that took place at the Rish Lakish Olive Press in Zippori with a variety of farmers and interested parties. It was experiential. Attached are some atmospheric photos from the meeting (with Yoram Kapulnik, Gil Eshel, Ronen Kfir, and me).

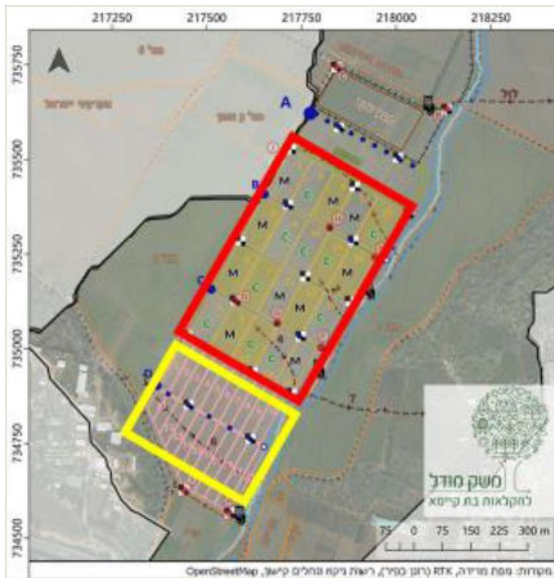
Regards,

Yael

## The Field Crops platform on the Model Farm

### Conservation Agriculture Interface versus the Accepted Interface.

200 acres of base treatments (red):



10 plots with an accepted interface,

10 plots with a service crops interface

(in each of the interfaces, half of the plots were scattered with compost and half of them with semi-stabilized manure).

**100 acres of precision agriculture (yellow):**

The entire area this year was given the service crop interface.

### In the plots of the accepted interface - Business as usual



Smoothing the area and sowing in one move



## **The agro-technical challenge lies in plots at the interface of service crops**

Sowing the yielding crop into a biomass layer 5-10 cm thick!!!

That is, placing the seeds in the soil,  
passing through a biomass layer of service crops

The actions described in the following slides are done elsewhere in the world on different soils. However, in Israel, this is an innovative application that poses an agro-technical challenge, especially in heavy clay soils, such as in the Model Farm.

First, the growth cycle of the service crops is halted. To facilitate this, we spray the plants with pesticides and, later, crush them. After applying the spray (we are still in process of learning how to choose the active substances and their quantity), we continue treatment with the roller-crimper, which has already been proven successful last season.



**Crushing of the biomass with the help of the roller-crimper**

**5.4.2022 New cutting beam leaves ZACH Agri on its way to Newe Ya'ar.**



**New locally produced spike wheels are installed on the cover wheels**

**Assembling and examining the operation of the cutting beam**







**Preliminary attempts at the operation of the new vegetation-cutting system.**



Strenuous teamwork of Yossi Kashti, Asher Levy (Agricultural Engineering), Zohar, Muhammad, Evyatar and Ronen (Newe Ya'ar), Eran Gabbay (Hazorea Field Crops), Gil Eshel, Gilad Shalev, Alon Maor (Erosion Research Station and the Soil Conservation Division), Or Ram (Ministry of Agriculture Extension Service) and Yoram Steinberg (Valley Farmers Center)

## Adding Assemblies to the Monosem Seeder

The cutting beam is harnessed to the tractor, and the sower is harnessed to the beam. All assemblies must be fully matched. Adjusting the sowing intervals so that the seeding cults follow the cutting discs.

With the exception of the original tilling system of the seeder (writing in blue), all the rest are specially assembled assemblies.



"Cover wheels" to close the sowing strip

The seeder tilling system consists of a pair of tilted discs and a depth wheel

"Evacuation wheels" – finger weeders for removing vegetation from the sowing strip

Harness the seeder to the beam

Disc knives with depth wheels for cutting the vegetation

Beam harnessing to the tractor



**Finger weeders for removing vegetation from the sowing strip**



Cover wheels to close the furrow after sowing. In three units, new cover wheels were installed with long curved (6 cm) steel spiked wheels, and in the other three, the seeder wheels were installed with short (2.5 cm) triangular steel spiked wheels.



Tractor-harnessed cutting beam

Disc knives with depth wheels for cutting vegetation

Evacuation wheels - to remove vegetation from the sowing strip in order to allow the tiller to pierce a furrow in the ground and place the seed in it.

Depth wheels for determining the depth of the furrow

Covering wheels, covering the furrow with soil and keeping the seed in a moist environment.





**Initial attempts at sowing into the biomass of utility crops.**



**A moment of satisfaction...**

Spearheading our endeavors:



Yossi Kashti  
(Agricultural engineering) -  
center

Gil Eshel  
(Soil Conservation  
Department) – on the left

Eran Gabai  
(Field Crops Hazorea) –  
Thank you for your assistance  
and for loaning us some of the  
accessories!

### Model Farm Field Crops after killing off the service crops and sowing corn - 13.4.2022



100 hectares  
of precision  
agriculture



200 hectares of basic treatments