



PRECISION  
FARMING

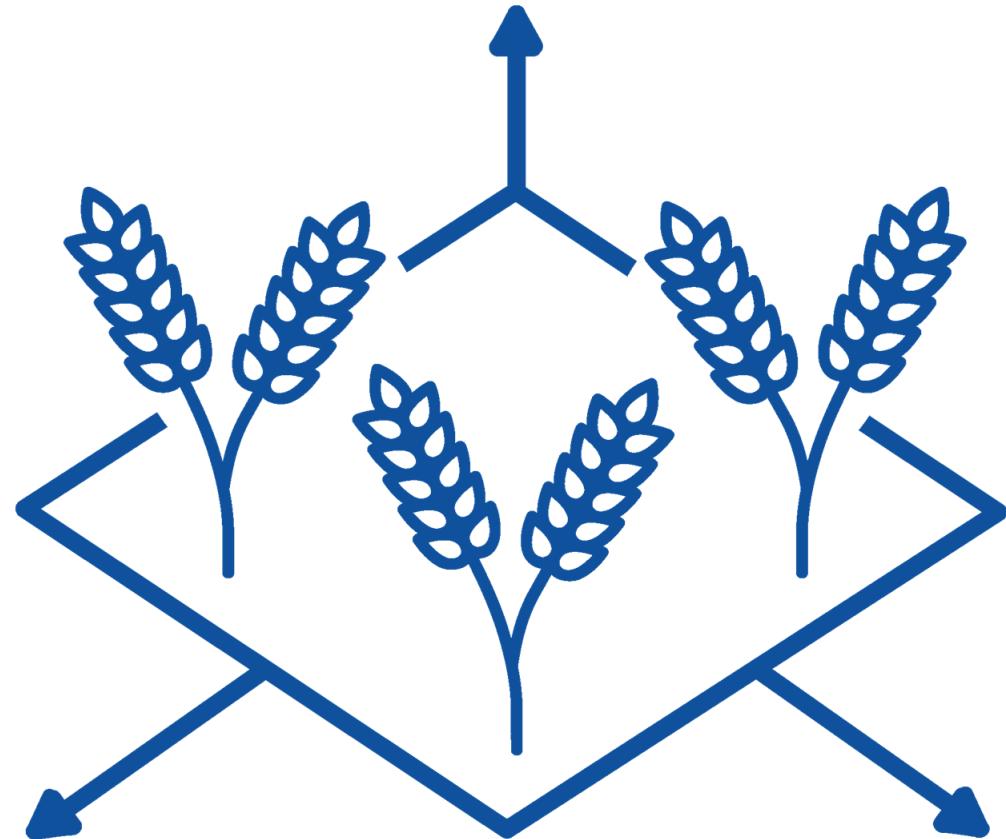
# Modern technologies used in precision farming

- Precision agriculture is a system of computer-assisted agriculture. It makes it possible to adjust agrotechnical treatments to changing conditions in specific parts of the field. Among other things, the current state of plant development or soil properties are taken into account.



**Modern technologies make it possible to achieve higher yields with better quality, while reducing costs and labor inputs.**

**Environmental pollution is also reduced.** This is made possible by knowing one's resources, using appropriate software and automating agricultural production processes.

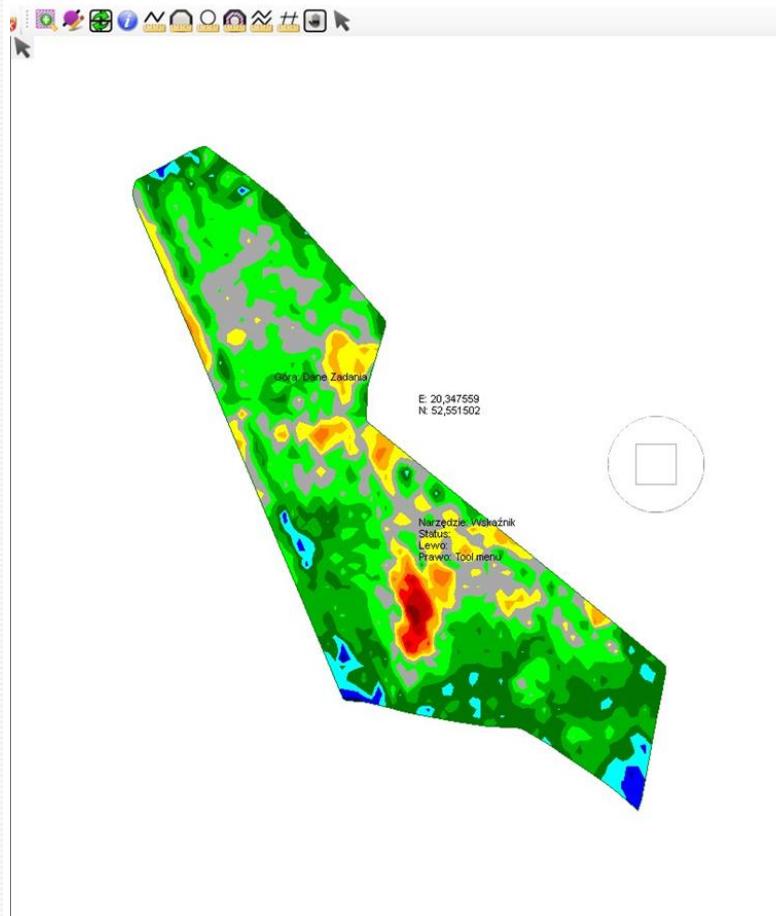


# 1. SOIL SCANNING

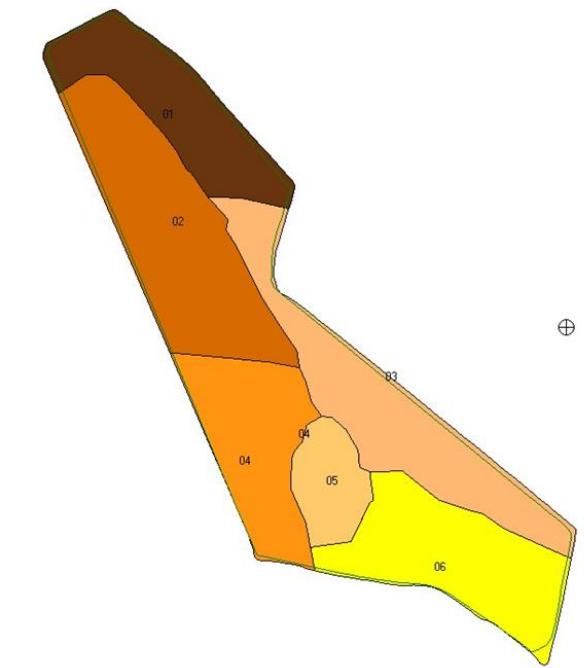
- The first step in precision agriculture and, above all, precision fertilization is to know precisely the abundance and nature of the soil under cultivation. Fertility, the capacity of the sorption complex, the ability to retain moisture or drain excess water - these are parameters that are directly derived from the mechanical structure of the soil.
- For this purpose, EM-38 soil scanning offered by Agrotechnology was performed. The information obtained from the scanning was then used to plan homogeneous soil sampling rasters, thus achieving the highest quality of soil testing available today, which translates directly into the quality of variable fertilization strategies.

The scan results in a mosaic map of the field, which, when analyzed, allows us to isolate rasters-smaller areas where the same conditions hold.

View of the field after scanning



Field division into rasters



## 2. SOIL TESTS



- Having such accurate information, the next step is to analyze the abundance of macro and micronutrients in the soil. In our company, this procedure is performed in autumn, early spring and, if possible, each time before the next planting in the season in a given field.
- Samples are taken using an automatic Wintex 1000 sampler attached to the CFMOTO UFORCE 1000.

- Sampling sites should be characterized by a similar pattern of natural conditions.
- Soil is taken preferably diagonally across the field, from the 0-20 cm arable layer for arable land. On average, 15-20 punctures are made from one raster. With GPS software, the accuracy of sampling from individual rasters is done accurately and precisely.
- The packaged and detailed samples are delivered to the nearest District Chemical and Agricultural Station.



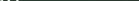


### 3. FERTILIZATION

After receiving accredited soil test results, fertilizer doses are determined for rational fertilization. Then a fertilizer order for a specific field is made in a computer program and the file prepared in this way is dumped onto a portable flash drive.

## 3. FERTILIZATION

Precise fertilization is made possible by the use of high-tech spreaders - in the case of mineral fertilizer, the Kverneland Exacta TL GEOspreader, and in the case of calcium fertilizer, the AMAZONE ZG-B 8200 Drive. In both cases, the ability to use the spreader in conjunction with GPS increases fertilizer savings.

Fertilizer order prepared on a flash drive. 

Zadanie 01
<<Poprzednie Zadanie
Dodać Zadanie >>

Pola

Zamów.

1

▼
▲

Status

Wydane

Nazwa

Wydane

Areal docelowy

ha
Widok Zapisów Pola

Zamień

Anuluj Pole
Cofnij Anulowanie

Cel
Mapa
Przeprowadzone Prace
Nutrient Management

Utworzyć zrównoważone mapy aplikacji docelowej dla wybranych i nowych pol
Wyszukaj

Mapy Łącznie

Docelowe Komórki Siatki
Czarna kreda
Linie Siatki
Linie Siatki

Góra: Dane Zadania

Generator Siatki Docel.

Opcje Siatki Mapy

Narzędzie Wskaznik  
Status: Nie jest używany

Kalibracja Zadania

Przelicz Ilość Łączne

Lewo: Tool menu  
Prawo: Tool menu

Mapa Pola

elan
Home
Nagłówek Zadania
Maszyna Rolnicza
Pola
Produkty
Notatka

| Zadanie 01               |      |       |            |           |            |          |                  |             |          |  |  | <<Poprzednie Zadanie |  | Dodaj Zadanie >> |  |
|--------------------------|------|-------|------------|-----------|------------|----------|------------------|-------------|----------|--|--|----------------------|--|------------------|--|
| Operacje Polowe - Wydane |      |       |            |           |            |          |                  |             |          |  |  |                      |  |                  |  |
| Pole                     | Cel  | Start | Zakończone | Przerwany | Zakończone | Wiatr    | Dominująca Gleba | Temperatura |          |  |  |                      |  |                  |  |
| Areal ha                 | Data | Czas  | Data       | Czas      | Areal ha   | Operator | Kierunek         | Warunki     | Temp (C) |  |  |                      |  |                  |  |
| 6.2 Nieprzydzielone      | 3,48 |       |            |           |            |          |                  |             |          |  |  |                      |  |                  |  |

|                 |                          |                            |                    |  |   |
|-----------------|--------------------------|----------------------------|--------------------|--|---|
| Wybierz Pola    | Dodaj Zapis Pracy        | Usuń Zapis Pracy           | Usuń Całą Pracę    |  | <input checked="" type="checkbox"/> i wzór indywidualne raporty |
| Podziel Zadanie | Docel PowZadani          | 3,48                       |                    | <input type="checkbox"/> Blokuj zadania razem jako grupę |   |
| Ciągnik         | <input type="checkbox"/> | Powiez Koszt Maszyny Roln. |                    |  |   |
| Maszyna Roln.   | Amazone ZG-B 8200 Dr     | ...                        | ROZSIEWACZ AMAZONE |  |   |
| Ustawiania      | WAPNO                    |                            | Koszt docel/ ha    | 108,00   |   |
| Nagłówek        | Produkt                  | Jednostki                  | Cel                | Użyt.  |   |
| Napój           | Czarna kreda             | kg                         | Dawka Koszt na ha  | Dawka Ilość Strata Całkowita Ilość Typ Wyceny            |   |
|                 |                          |                            | 0,000              | 0,00 0,000 0,000 0,000 Magazyn                           |   |

|                  |                       |                          |                                     |                          |                          |
|------------------|-----------------------|--------------------------|-------------------------------------|--------------------------|--------------------------|
| Wybierz Produkty |                       | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|                  | Docel.całk.koszt.zad. |                          |                                     |                          |                          |
|                  | 108,00 PLN/ha         |                          |                                     |                          |                          |

|      |      |                  |                  |      |          |         |
|------|------|------------------|------------------|------|----------|---------|
| Plan | Home | Nagłówek Zadania | Maszyna Rolnicza | Pola | Produkty | Notatka |
|------|------|------------------|------------------|------|----------|---------|

**Kverneland Exacta TL  
GEOSpread disc  
spreader**



**AMAZONE ZG-B 8200 Drive  
large area spreader**

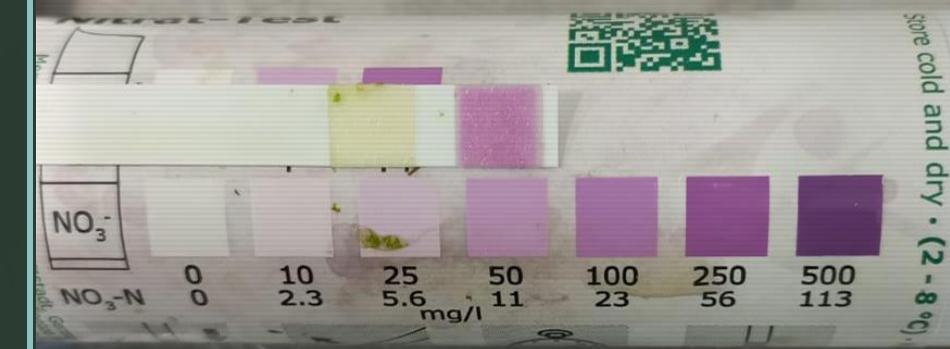




Precise fertilizer spreading  
with the Kverneland Exacta  
TL GEOspread disc  
spreader.

## 4. ANALYSIS OF NITRATE LEVELS

During the growing season, an analysis of nitrate levels in cultivated vegetable species is performed regularly. This knowledge allows optimal use of nitrogen as a major yield-forming component.



# 5. FERTIGATION

Precise dosing of fertilizer in the form of a solution into the root system of the plant along with the water required for irrigation. This significantly improves the quality and quantity of the yield obtained from the plantation. The addition of dissolved fertilizers to the water is possible when a connection is made in the mains supplying the crop, through which the solution is introduced in the appropriate concentration.



Fertigation is performed to maintain constant nitrogen levels in plants. Administering nitrogen in an aqueous solution using a drip irrigation system provides plants with faster access to this nutrient.



▼ THANK YOU FOR YOUR  
ATTENTION!