

**REPORT**  
**on verification of BIO-GEL product in winter wheat cultivation in Freedom Farm International company**

**1. Enterprise name:** Magistral-service association (Zaporizhzhya Region, Melitopol district, Romashki), Freedom Farm International company.

**2. Verification area:** 15 ha.

**3. Persons in charge of conducting the BIO-GEL verification:** V.I. Knish and V.A. Marchuk exploring agronomists of BIO-GEL company; B.A. Orlov, chief agronomist, A.M. Tensin, director of Magistral-service association.

**4. Time of verification:** April – July, 2018

**5. Conditions of verification:** Magistral-service association soils are typical of the zone (southern loamy black earth), the average humus content in the arable layer being 2.7%.

The farm is engaged in producing winter wheat, soybean, sunflower. The meteorological conditions in 2018 differed from the usual ones, winter wheat suffered from considerable lack of moisture in soil, there was no effective rainfall from the first ten-day period in April till the end of June. The temperatures in spring and especially in summer were much higher than the average long-term ones which caused the air and soil drought.

**6. Technology of winter wheat cultivation:** Variety – Shestopalovka. Precursor – fallow land. Fertilizers: in autumn during the pre-sowing cultivation 100 kg/ha of compound NPK fertilizer was applied, in early spring – 320 kg/ha of UAN (32%). Besides, winter wheat crops were sprayed twice:

The first spraying was carried out on April, 30 at the stage of stem elongation with tank mixture of Granstar herbicide (0.02 l/ha) and Rex Duo fungicide (0.5 l/ha).

The second spraying was carried out on June, 3 at the stage of grain formation with tank mixture of Decis profi insecticide (0.046 l/ha) and magnesium sulphate mineral microfertilizer (2 kg/ha).

**7. Winter wheat cultivation technology as recommended by BIO-GEL company.** According to the BIO-GEL application technology the product was applied twice for spraying plants, the technology used on the farm remaining without changes. Thus, 1.5 l BIO-gel was just added to the tank mixture.

The first spraying was carried out on April, 30 at the stage of stem elongation. BIO-GEL (1.5 l/ha) was introduced into the tank mixture with Granstar herbicide (0.03 l/ha) and Rex Duo fungicide (0.5 l/ha).

The second spraying was carried out on June, 3 at the stage of grain formation. BIO-GEL (1.5 l/ha) was introduced into the tank mixture with Decis profi insecticide (0.046 l/ha) and magnesium sulphate mineral microfertilizer (2 kg/ha).

**8. BIO-GEL effectiveness compared to the control.** The winter wheat yield in the control (basic technology) amounted to 4.35 t/ha. The yield with BIO-GEL applied amounted to 4.68 t/ha. The yield gain was 0.33 t/ha, or 7.6%. It should be noted that wheat root system was more powerful which made it possible to consume moisture from lower soil layers.

The economic effect due to BIO-GEL application was 1410 UAH/ha. (The price of 3 l/ha of BIO-GEL is 240 UAH. Proceeds from selling 0.33 t of wheat are 1650 UAH/ha as the grain cost is 5000 UAH/t). BIO-GEL effectiveness: 1 UAH invested in buying BIO-GEL brought 6.87 UAH profit.

**9. Persons in charge of the verification:**

**Magistral-service association**

Chief                    A.B. Orlov  
agronomist  
Director                A.M. Tensin

**BIO-GEL company**

Agronomist            V.I. Knish  
Agronomist            V.A. Marchuk  
Director                S.B. Osipenko