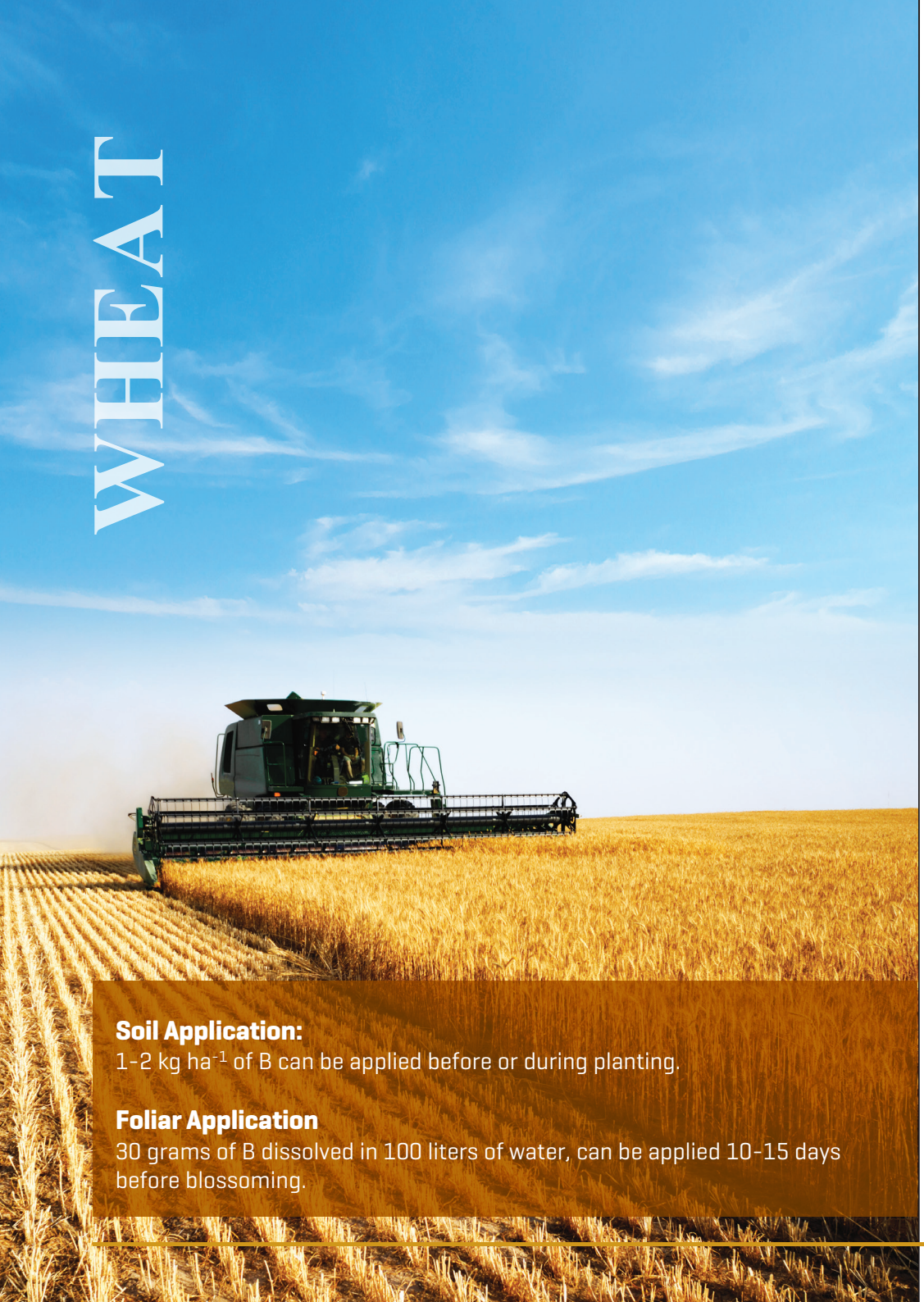

Soil Application:
1-2 kg ha^{-1} of B can be applied before or during planting.

Foliar Application
30 grams of B dissolved in 100 liters of water, can be applied 10-15 days before blossoming.

WHEAT

It is generally accepted that the amount of boron required by cereals such as wheat and corn to realize their growth and yield potential is very low compared to the needs of dicotyledonous plants. This difference is mostly due to the differences between the cell wall structures of cereals and dicotyledonous plants. Up to 90% of boron in plants takes place as a building block in cell walls. The pectin type found in boron cell walls acts as a chemical bridge between the molecules of a substance. Thanks to this structural feature, boron makes an important contribution to the functionality of the cell wall and increases its physical integrity and mechanical resistance. As there is much less of this pectin substance in the cell wall structure of cereals than in the cell walls of dicotyledonous plants, the boron requirement for cereals is very low. For the same reason, the probability of being affected (damaged) from boron toxicity is much higher in cases where there is excess boron in the environment.

When an evaluation is made among cereals, it is known that wheat and barley are more sensitive to boron deficiency compared to corn and paddy. In the experiments conducted in wheat under controlled conditions, when very little boron is applied to the plant, significant decreases in the green part growth of the plant occur and as the boron nutrition of the plant improves, the green part growth gradually improves. Boron deficiency, which is severe enough to cause visual symptoms during the vegetative growth period of wheat, is not frequently encountered in field conditions. However, when there is a severe boron deficiency, the developing leaves are primarily affected in wheat and very typically deformations called saw tooth shaped motifs appear on the edges of the young leaves.

With the exacerbation of boron deficiency, sudden stops, deformations and deaths are observed in the growth points of the plants. As it is known, due to the immobility of B in the plant, the growth points are extremely sensitive to boron deficiency.

Boron deficiency in wheat plant, as in other plant species, affects generative development and organs more than vegetative organs. Male sterility is a very typical problem in boron deficiency, this prevents seed formation and as a result, the ears remain empty. It is reported that the boron requirement of anthers and carpels from flower organs is 5-10 times higher than the requirement of vegetative tissues. The first symptom in wheat, which is affected by boron deficiency in field conditions, is typically seen during the flowering period. When the florets are examined in this period, it is observed that pollen and even anthers do not develop properly. The shape and functional disorders that occur with boron deficiency in the anthers as the male organ also strongly prevent seed formation. Although boron deficiency also affects the female organ, it is thought that the resulting male sterility is the main cause of yield losses observed in boron deficiency.

When the boron nutrition of dicotyledonous plants with high boron requirement is sufficient, the leaves usually contain between 25 and 75 mg kg^{-1} of boron. On the other hand, when boron nutrition is sufficient in wheat, the boron concentration commonly found in leaves varies between 5 and 15 mg kg^{-1}. Generally, a boron concentration between 5 and 10 mg kg^{-1} in the young leaf that has completed its growth during the tillering period is sufficient, and marginal boron nutrition is accepted if it is between 2 and 4 mg kg^{-1}. It is reported that the critical boron concentration, which causes visual deficiency symptoms in the young leaf and affects growth of wheat, is around 1 mg kg^{-1} in the vegetative period.

The commonly recommended boron amount for soil boron fertilization in wheat varies between 1 and 2 kg ha^{-1}.

Wheat is a very sensitive species to boron toxicity, and toxicity symptoms show itself as burning/necrosis starting from the tips and edges of the lower (old) leaves. These leaf edges and tips turn into light gray-brown dead tissues.

"For more information: tarim.etimaden.gov.tr/en"

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