



SEPTEMBER 2025 NEWSLETTER

## HI EVERYONE. LET'S TALK ABOUT DROUGHT!!

Many areas in the United States that are west of the Missouri River have experienced drought conditions during this summer (AND MANY HAVE GOTTEN SWAMPED!) and continue to do so. Applying the biological products, we distribute as recommended can help combat effects of drought conditions on soil, and in turn, on crop production.



Pictures to the left and below are from fields of a customer in Nevada. Neither the Timothy grass to the left, nor the alfalfa below is showing any signs of stress from drought conditions prevalent in the area during this summer. The producer judiciously applies enough irrigation water, but not too much!



Drought conditions can change soil pore structure, especially of soil that is not irrigated adequately. Pore space refers to the volume of air space between soil particles. Pore space is essential for sufficient oxygen to infuse soil. Healthy oxygen levels and optimal pore space facilitate water infiltration, water movement within soil, better nutrient holding in soil, and more efficient nutrient uptake by growing crops. When soil is not irrigated adequately (or does not otherwise receive sufficient moisture), soil particles tend to move closer together, thereby diminishing pore size, and often causing some soil compaction.

Applying the biological products EarthGen215 distributes as recommended bolsters activities of beneficial soil organisms. Their activities decompose dead matter in soil, transforming it into humus. Humus in soil is soil organic matter (dead matter) that is changed completely into rich topsoil, capable of holding a wealth of soil nutrients and moisture.



**The field above belongs to another customer in Nevada. Here again, the alfalfa in this field shows no signs of stress from drought conditions. This producer also judiciously applies enough irrigation water, but not too much on this field.**

When weather and moisture conditions combined with shrinking pore space, soil aggregation can also be disrupted. Soil aggregates are groups of soil particles comprised of different proportions of sand, silt, and clay, that are held together by humus. The more humus there is in soil's top six to eight inches, the more the soil can sustain its crop through drought conditions.

When soil aggregates break down, soil structure weakens, making it more susceptible to water and wind erosion, and less capable of holding soil nutrients and soil moisture. During drought spells, soil moisture evaporates from the soil's surface, especially soil that is not covered by growing plants. As soil moisture evaporates, any soluble salts in the soil usually rise to the surface. Soluble salts include any material with a negative charge (i.e., chloride) that combines with a material having a positive charge (i.e., sodium). Sodium chloride is common table salt. Other elements that carry a positive charge and combine with a negatively charged material that can be brought to the soil's surface when moisture evaporates are calcium, magnesium, potassium, nitrate, sulfate, and carbonates. Sodium compounds and calcium compounds being brought to the soil's surface leave a white colored, crusty residue. In areas where irrigation water contains a lot of sodium, that water contributes to salinity in the soil, especially when there is not enough rainfall to leach away some of the sodium. Any soluble salt being brought into the top six to eight inches of soil creates nutrient imbalances that weaken and reduce production.

Excess sodium trapped by tight pore spaces in the root zones of growing crops interferes with the crops' uptake and assimilation of other essential nutrients, especially potassium. When there is more sodium than potassium in a growing crop's root zone, the crop uptakes the sodium first, resulting in potassium deficiencies in the crop, despite adequate potassium being in the soil.



**The field above belongs to a customer in Utah. Alfalfa orchard grass in this field shows no signs of stress from drought conditions. The producer also judiciously applies enough irrigation water, but not too much on this field.**

Humus in soil generally does not contain high levels of sodium, since it results from decomposition of dead matter. Applying products EarthGen215 distributes helps develop more soil humus which can help dilute sodium content in soil. In addition,

these products infuse more oxygen into soil by increasing pore space. Increased pore space allows more sodium to leach out of at least the top six to eight inches of soil.

ON ANOTHER NOTE: WE ARE INVENTORIED UP FOR FALL ORDERS AND WE LOOK FORWARD TO SERVING YOU. PLEASE REVIEW THE WEB PAGE FOR ORDERING AND IF ANY OF THE THREE OPTIONS DOES NOT QUITE FIT YOUR NEEDS, FEEL FREE TO CONTACT ME DIRECTLY HERE AT THE OFFICE AND I WILL CUSTOM TAILOR AN ORDER THAT FITS!! THE THREE OPTIONS INCLUDE SHIPPING!!!!

I LOOK FORWARD TO SERVING YOU at: **EarthGen215.com**

Tom

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