Mowing Speed: How Fast Is Too Fast?

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As first-crop hay harvest is approaching, there are several things to consider for getting equipment ready and how to operate machines for an efficient harvest. Mowing hay is a critical operation. Improper mowing can leave a ragged and uneven cut that may have an impact on regrowth. Depending on machine type, mowing speed is an important parameter for optimizing hay harvest.

Modern mowers typically use a disk cutterbar configuration. These allow for faster ground speed, improved performance in lodged and fine crops, less potential damage from soil contact, easy servicing, and have fewer moving parts (Shinners, 2021). Others utilize a sickle cutterbar to mow hay. These are lower in cost, require less power to operate, have lower repair costs, and can be operated with an open station tractor (Shinners, 2021). These two machines have very different modes of operation and offer very different operating speeds. The American Society of Agricultural and Biological Engineers Standard for Machinery Management Data gives an average mowing speed for grass and alfalfa as 10.5 mph ± 3.5 mph (ASABE, 2020). While this is in the range of typical mowing speeds, data used for this calculation is somewhat old. In 2018, the world record for acres mowed in an 8-hour day was set at 348 (*Hay & Forage Grower*, 2018), equating to an average of 44 ac/hr and mowing speeds ≤19 mph. Some mowing machines are also being tested at speeds ≥25 mph (Undersander and Luck, 2017) With these speeds being reported, and possible, it begs the question "How fast is too fast?"

Maximization of productivity involves cutting width and cutting speed. Cutting width is fixed by the machine design, so increasing productivity requires either investing in a wider machine or increasing mowing speed. There is a critical travel speed for mowing defined as the maximum speed a machine can travel without leaning the crop forward as it passes and maintaining a clean cut of the crop (Shinners, 2021). Other factors impacting mowing speed are field roughness, potential obstructions in the field, and soil conditions. If the field is smooth, it will not be the limiting factor in mowing speed. However, rough fields can cause damage to the machine, so going slower would be recommended. Obstructions, such as rocks, tile holes, or foreign objects can cause substantial damage to hay mowing machines. If you know the field well and can be certain no hub caps, cinder blocks, or other items lurk under the hay canopy, then mowing faster is a possibility. Finally, field conditions like soil moisture and crop yield can have an impact on mowing speed. High-yielding crops (i.e., very dense grass) might require the mower to move more slowly through them. This might also be limited by the power availability of the tractor doing the mowing. If the soil is too wet, say at field capacity or slightly above, then the lugs on the tires of the mower could be causing more damage by going fast as well. Mowing in wet conditions also provides the risk of getting stuck and seriously damaging the crop.

Most sickle bar machines have the cutter visible from the cab and, thus, critical mowing speed can be readily witnessed by the operator. The tarps surrounding most disk mowers make it difficult to see the crop being cut. Ensuring a clean cut of the crop is achieved should be a priority during harvest. Checking to ensure the machine is not overloaded and the crop is cut standing rather than leaning will achieve the best results and allow the cutterbar and conditioner to work optimally. When operating this spring, be mindful of how your mower-conditioner is performing and be sure you are within its operating limits when it comes to speed.

References.

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