



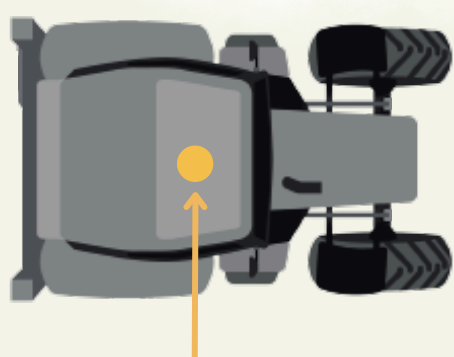
Check out our FarmSafe podcast episode, *Safe Tractor Operation: ROPS*, for more information on preventing tractor rollovers.

CENTER OF GRAVITY

TRACTORS

FIGURE 1

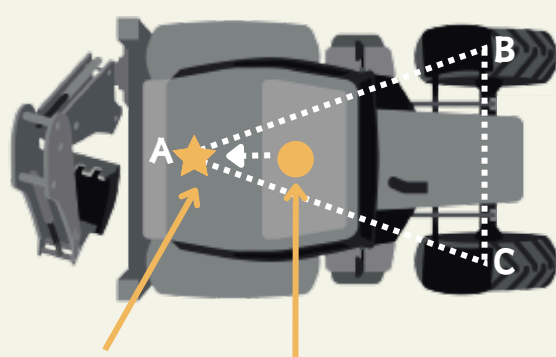
Unloaded Tractor



Tractor's
Center of
Gravity

FIGURE 2

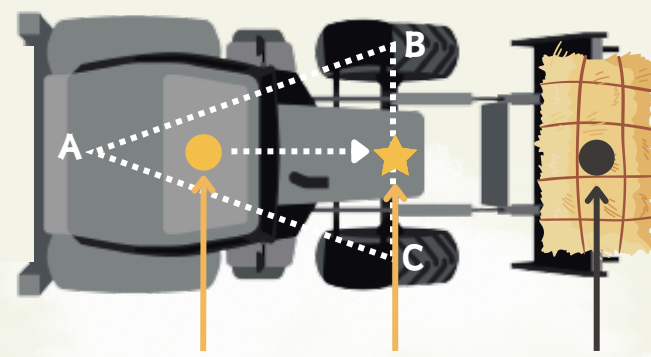
Tractor with Back Counterweight



Center of
Gravity
(CG) Tractor's
Center of
Gravity

FIGURE 3

Tractor with Front Load

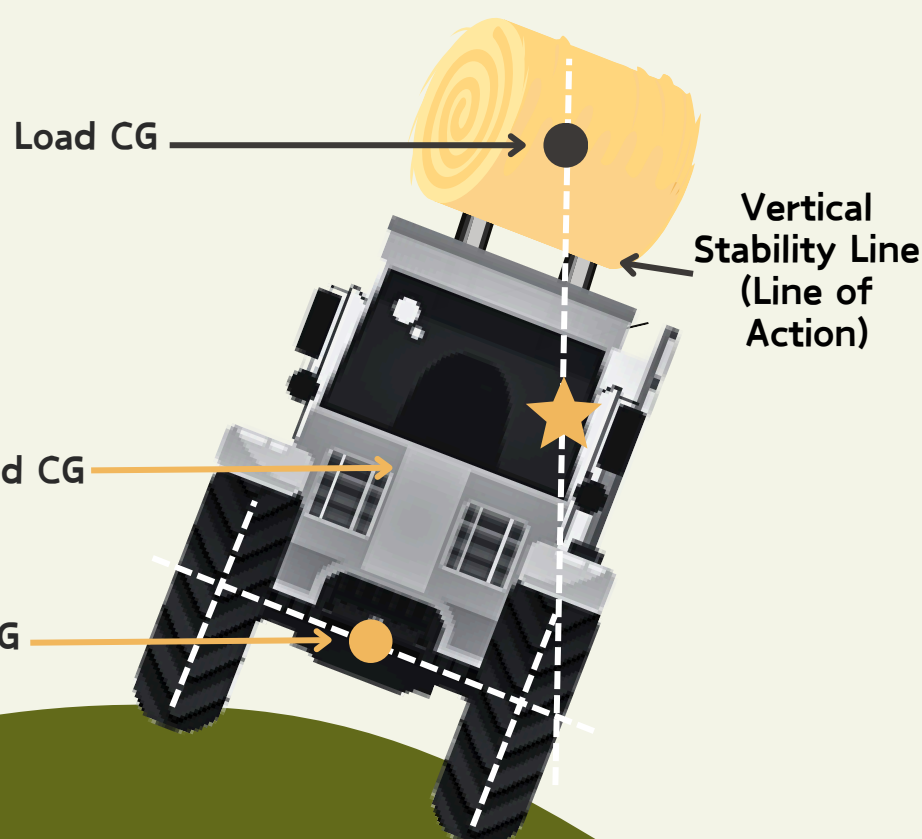
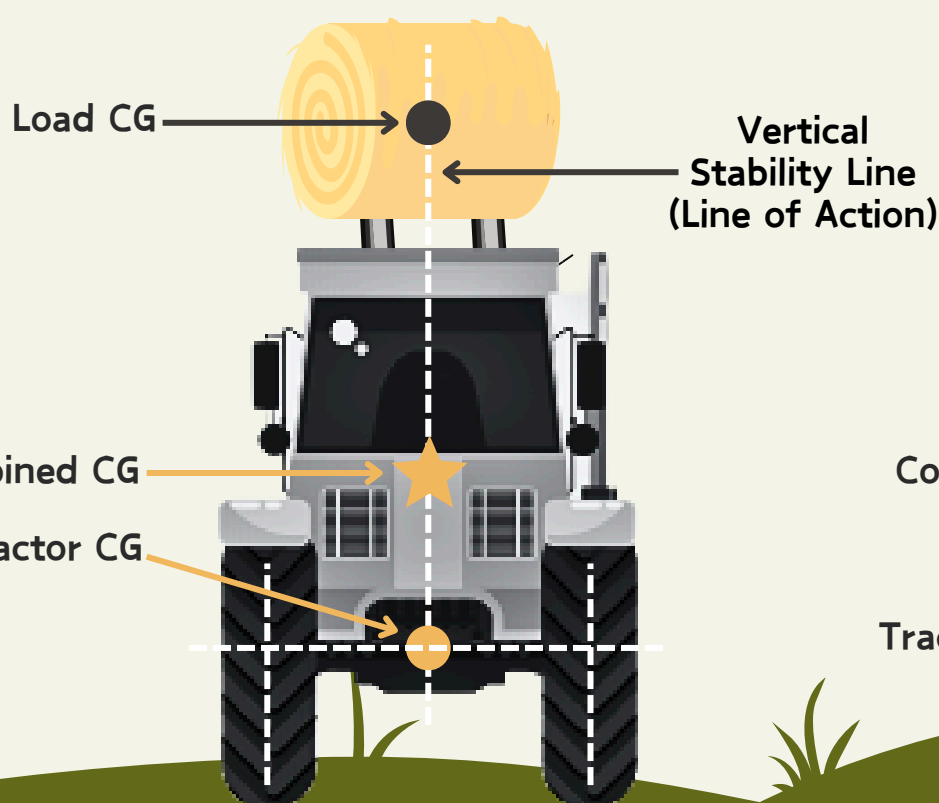


Tractor's
Center of
Gravity Combined
Center of
Gravity
(CG) Load's
Center of
Gravity

When the tractor is unloaded (**figure 1**), the tractor's CG is located between the front axle and the back axle, meaning the tractor is stable.

Additional counterweight (on the back) will cause the tractor's center of gravity (CG) to shift toward point A and result in a tractor that is less stable laterally (**figure 2**).

When the tractor (or vehicle) has a load in the front, the combined CG shifts toward the front axels (**figure 3**). In practice, the combined CG should NEVER be in front of the front axle (B-C line).



The vehicle is **stable**:
Combined CG is within
the wheel base.

The vehicle is **unstable** and will
continue to tip over:
Combined CG is **outside** wheel base.