

Land Use and Waste Sector: Farming Yield and Efficiency

Farm yield and efficiency lever discussed the yield and efficiency in both crop and livestock farming.

Livestock

Emissions from livestock are generated through enteric fermentation and management of manure from domestic animals such as cattle, sheep, goats, horses, swine, donkeys (asses and mules), camels and poultry. Ruminant animals such as cattle generate the most methane while non-ruminant animals such as swine generate minimal amounts. Due to the diet nature of Nigerians in consonance with their low income red meat is the major source of protein and this has resulted in the population of livestock increasing over the years with increasing human population.

Yields

Improving the yields of livestock grazing land and food crops means less land is needed to maintain the same livestock population and level of food production thus freeing up more land for woodland and bioenergy crops. Yields in bioenergy crops can be improved by growing crops with higher energy densities or higher dry mass per hectare. Ranging is one of the ways to improve yields of livestock as the livestock will feed on improved feeds and in return produce more meat and milk; and as well improve manure management system as compared to open grazing. Likewise, ranging will reduce the area of land used for grazing and in return improve the yield of food and energy crops with less crop farmers versus herders' clashes.

The use of improved seedlings will in addition improve yields in food crops. Yield in this context is expressed as an index relative to 2015 yields.

Emission Intensity

In Nigeria Inventory, Livestock has 10% Of the net emission in AFOLU. In addition to emission from livestock there are emission from arable land and soil management from the Agricultural sector

Key Interactions

To derive benefit from increasing the ambition level of the Forestry or Biofuels levers, it is necessary to free up land using the Farming Yield and Efficiency lever.

Level 1

There is no change in livestock numbers, yields or agricultural emissions compared with 2015, other than for bioenergy yield.

Level 2

Ambition is 1/3rd of Level 4.

Level 3

Ambition is 2/3rds of Level 4.

Level 4

The numbers of cattle and sheep is reduced by 20% due to improved meat and milk yield from ranging and other best practices for agricultural efficiency adopted widely across the sector, such as better nutrient and feed planning, and improved manure management. Plant and livestock breeding improve the efficiency of production through conventional breeding, and in the longer term through gene editing and genetic modification (GM).

Advanced fertilizer formulations which incorporate innovations such as nitrification inhibitors become widely adopted in the longer term. And the use of biofuel to decarbonize machinery used in agriculture

Sub Lever	2015	Level 1	Level 2	Level 3	Level 4
Livestock Population in Millions					
Poultry	194.97	194.97	207.97	220.98	233.96
Cattle	19.71	19.71	18.4	17.08	17.77
Sheep & Others	125.34	125.34	116.97	101.37	100.29

