Precision Livestock Farming (PLF) is the application of principles and techniques of process engineering to livestock farming in order to monitor, model and manage animal production.

Moreover, PLF technology generates an exceptional capability to collect detailed data on a farm from individual animals and a flock across its productive lifespan.

The PLF data consolidated is used to capture animal production, health status, monitoring social behavior and enhances the selection of superior performing animals with high genetic potential.

Precision Livestock Farming is applicable to both intensive and extensive production systems.

However, PLF cannot stand alone without sustainable farming which demonstrates the importance of a system that preserves the basis of life for generations to come.

A combination of fields involved in implementing Precision Livestock Farming

- Agriculture
- Engineering
Sustainable farming

- **Sustainable intensification**
  For example, in a flock of chickens reared using the battery cage system, a limited number of chickens per unit space, with adequate water and feed rack must be provided. This also apply to a herd of cattle in a camp, such that space per animal is calculated prior to placing a herd.

- **Providing sustainable feed base**
  As a farmer it is advisable to have backup in terms of feed and adequate supplies for your herd, in case of an epidemic outbreak or any unforeseen circumstances. Therefore, your herd or flock will have a continuous source of feed or water supply.

- **Reducing environmental impact**
  Sustainable farming without adverse effect on the environment is recommendable, therefore, as a farmer ensure that all that is produced does not disturb nature.

- **Feed and food safety**
  The vitality and quality of feed given to animals is a factor to consider. For example, animal based products are not supposed to be fed to animals for example bone meal or fish meal in ruminant feeds. Feed regulating bodies are against these mal-practices and watch over compliance to food safety.

Precision livestock farming

- **Use of precise ingredient matrix**
  During feed formulation specific rations are precisely followed to suppress addition of extra ingredients, which may cause nutritional
disorders in domesticated livestock.

- **Use of precise nutrient requirement matrix**
  Domesticated animal nutritional requirements are known, therefore adequate rations ensures animal performance. Overfeeding increases costs to a farmer, and underfeeding is highly not recommended as it suppresses growth on young animals, which may lead to malnutrition and diseases.

- **Proper use of modifiers and feed processing technologies**
  An illustration of an intensive system a farmer ought to adhere to precise size of feed. For example, uncrushed pellets for chicks to guarantee a reasonable size that can be swallowed by chicks.

- **Adjustment of nutrient supply to match requirements of livestock**
  Adjustments are made here and there to best suit your farm animals, through observations. An illustration of a young sick heifer failing to consume its daily ration can be fed loose feed (a different ration) and closely monitored by a farmer.

**The pillars of Animal welfare**

What are the **five animal freedoms?**

1. Freedom from Hunger and Thirst
2. Freedom from Fear and Distress
3. Freedom from Discomfort
4. Freedom from Pain, Injury and Disease
5. Freedom to Express normal behavior

**To sum it all up, Precision Livestock Farming and sustainable farming are key components often that, if practiced, may improve productivity on farms.**
References


https://www.smartagrihubs.eu/latest-events/9th-European-Conference-on-Precision-Livestock-Farming


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