

For Healthy Animals Avoid Inbreeding.

DO NOT MATE:

- Father with daughter or mother with son
- Brother with sister, Half brothers, half sisters and cousins
- Any two animals that are related by a common parent, grandparent or great grandparent



NB: For a more accurate calculation of inbreeding refer to the *Simple Inbreeding Calculator (SIC)*©, available from KDDP/SDP

The Inbreeding Fact Sheet

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The Inbreeding Fact Sheet

for Farmers and Extension Staff



A Publication of the Kenya Dairy Development Project (KDDP) and the Smallholder Dairy Project (SDP R&D)

What is inbreeding?

Inbreeding occurs when a cow or heifer is mated with a bull that is already closely related. Animals are said to be closely related when they have one or more common ancestors (for example, one or more of the parents, grandparents or great grandparents) Examples of inbreeding are mating between:

- Father and daughter or mother and son
- Brother and sister
- Half brothers, half sisters and cousins
- Any two animals that are related by a common parent or grandparent

For *practical purposes*, animals are considered related when they have one or more common ancestors within the last five or six generations. Animals resulting from inbreeding are referred to as *inbred animals*. In most cases, inbred animals perform poorly when compared to animals that are not inbred and this condition is called *inbreeding depression*.

Consequences of inbreeding

Scientists have found that inbreeding can cause the following problems in the offspring (children):

- Difficulties in getting pregnant (conceiving)
- Reduced milk production compared to the parents
- Reduced resistance against diseases like mastitis
- Higher death or mortality rates
- The animals take longer to mature (Slow growth rates and stunting)
- Higher frequency of hereditary defects like physical deformities.

Cow Card breeding and calving record

Cows Name:
Cows No:
Breed:
Date Born/Bought:
If bought:
Name of seller
Address of seller

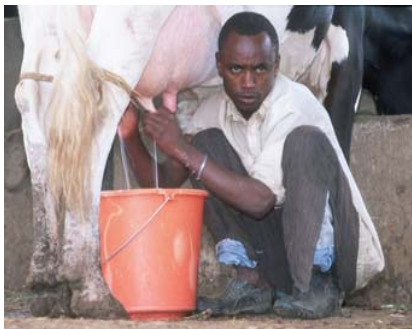
Breeding and Calving Record

		Heats and Services				Calvings		
		First	Second	Third	Fourth	Date	Sex	Remarks
1	Date							
	Sire							
2	Date							
	Sire							
3	Date							
	Sire							
4	Date							
	Sire							
5	Date							
	Sire							
6	Date							
	Sire							
7	Date							
	Sire							
8	Date							
	Sire							

How to control inbreeding: Proper recording

Avoid animals with one common ancestor to great-grandparent level and more than two common ancestors to great-great-grand-parent level. Keeping and *using* good records can allow the farmer to control inbreeding. Proper records should include:

- Individual and unique naming or identification of animals: This means that every calf born or bought should be given a permanent unique identification so that there is no chance of confusing different animals. For example an animal born on February 3rd 2003, could be named as Kapiti030203. Keep a family tree for each animal
- As much information on parents, grandparents and other ancestors as possible. Try to fill in a family tree diagram.
- Breeding records, with the bull name and number for each insemination so that a family tree for the calf can be prepared. Most farmers keep records of inseminations but they rarely record the bull name and number. If the calf turns out to be a heifer and the farmer rears it, he/she should note this bull's identity when taking the heifer for insemination so that it will not be served with semen from this same bull that sired her, else this will be a case of inbreeding.



Picture: A farmer milking his cow—Inbreeding could lead to reduced milk production in the offspring

In the short term, the effects of inbreeding may not be noticed, especially when it is mild. However, by the time it is noticed, farmers will have lost money in lost production and increased health costs. Inbreeding is therefore a profit robber that accumulates over generations, if not controlled. For small-scale farmers owning one or two animals, the farmer may opt to keep the under-performing inbred animals since it may be more costly to replace her.

How to control Inbreeding: Filling in a family tree

To find out if a mating being considered is acceptable, either with AI or bull service, try to fill in a family tree for the cow and bull using the family tree in the diagram on the next pages. If any animal appears more than once in the two trees – then the mating should not go ahead.

IMPORTANT

- If any animal appears in both family trees (that is bulls and cows) **DO NOT MATE**
- If an animal appears more than once in the cows or bulls family tree then the cow or bull is inbred—in both cases, avoid breeding if possible.

Family Record Sheet

