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## Lecture 7

# Product-Product Relationship



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# Product-Product Relationship

Product-product relationship: The farmers have limited resources and have a number of enterprises/or enterprise combinations of crops and livestock to choose from. So the question is: How much of what to produce and with what technology. In other words, what combination of enterprises should be produced?

Algebraically,  $y_1 = f(y_2)$



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# Basic Relationship

**Joint Products:** Joint products result from the same production process and the production of one without the other is not possible. For instance, cotton lint & seed, wheat & straw. In such cases the quantity of one product produced decides the quantity of other product. For production decisions, joint products can be treated as one product. Changes in product combinations are possible in long run only .

**Complementary Products:** Complementarity between two enterprises exists when with a change in the level of one, the other also changes in the same direction. e.g. Maize after barseem.



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**Supplementary products:** Exists when increase or decrease in one product does not affect the production level of the other product. All supplementary relationships should be taken advantage of by producing both products to the point where the products become competitive.



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**Competitiveness:** This relationship holds when increase or decrease in the production of one product affects the production of other commodity inversely. Competitive enterprises compete for farm resources & substitute for each other. When two products are competitive, some amount of one product must be given up to increase the level of other product. MRPS between products is negative. When two products are competitive, they may substitute at constant rate, increasing rate or decreasing rate



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## (a) Constant Rate of Substitution:

It means that a unit change in one product is throughout accompanied by the same unit opposite change in the other product e.g. wheat & gram for land.



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## b) Increasing Rate of Substitution:

- (In this each unit increase in the level of one product is accompanied by larger and larger decrease in the level of other product. e.g. wheat & gram will substitute at increasing rate for capital and labour.





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## c) Decreasing Rate of Substitution:

- In this case a unit increase in the level of one product is accompanied by lesser & lesser decrease in the level of other product e.g. dairy & crops. Rare in agriculture. If this exists it will be economical to produce only one of the products. Price line will be tangent at only one of the end points of the curve.