

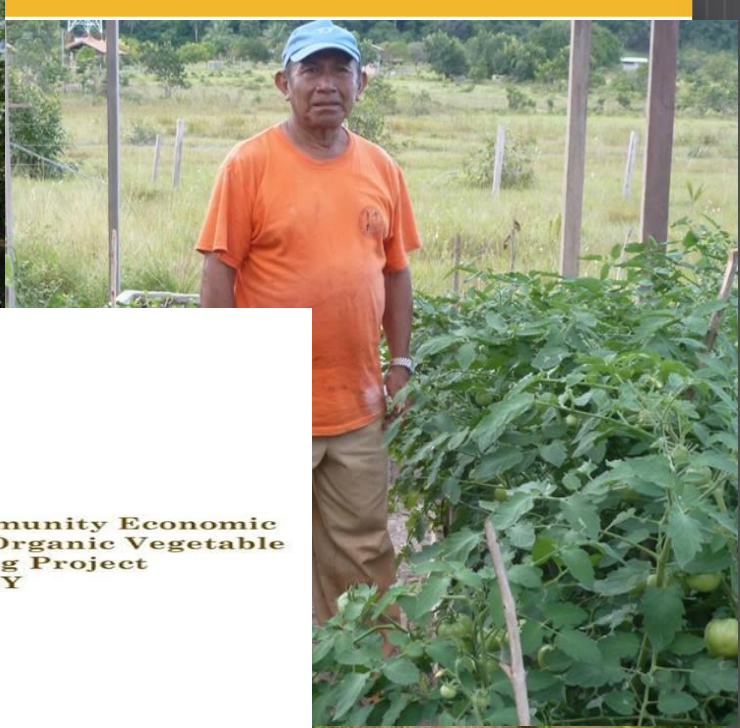


University of Missouri

Estimation of true phosphorus digestibility of soybean meal is affected by Ca level in broilers

Presenter: Colwayne D. Morris





IDB
Inter-American
Development Bank



**Sustainable Livelihoods and Community Economic
Growth through Hydroponic and Organic Vegetable
Production and Marketing Project
- ANT/JO-13502-GY**



PARTNERS OF THE AMERICAS
Caribbean Self-Reliance International (CASRI)

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Phosphorus (P): an essential nutrient

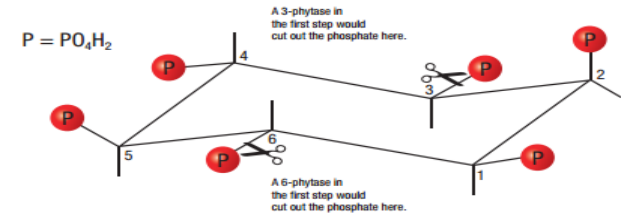
Cannot be synthesized but, must be obtained from dietary sources **Essential for:**

- Energy metabolism and bone formation
- Egg production and muscle growth
- Co-factor of enzyme, a component of nucleic acids and of phospholipids
- 60 to 80% of P bound as Phytate (Lott et al., 2000)
- Not easily digested by monogastric animals



(Weinera et al., 2001)

Use of Phytase



- Phytase enzymes are added to feed to release P from Phytate
- Reduces the need to add inorganic supplementation
- Reduces P excreted in manure (30 to 40%)
- Need to optimally rank the avP content of feed phosphates by using an accurate P evaluation protocol.



Need to switch from formulating based on NPP to digestible P in poultry

(Garrett et al., 2004)

MATERIALS AND METHODS

Animals:

- ▶ 560 male d-old Ross 308 broiler chickens
- ▶ Batteries (wire mesh floors)
- ▶ Lighting: continuous

Feed/water: *ad libitum*

In accordance to WPSA guidelines



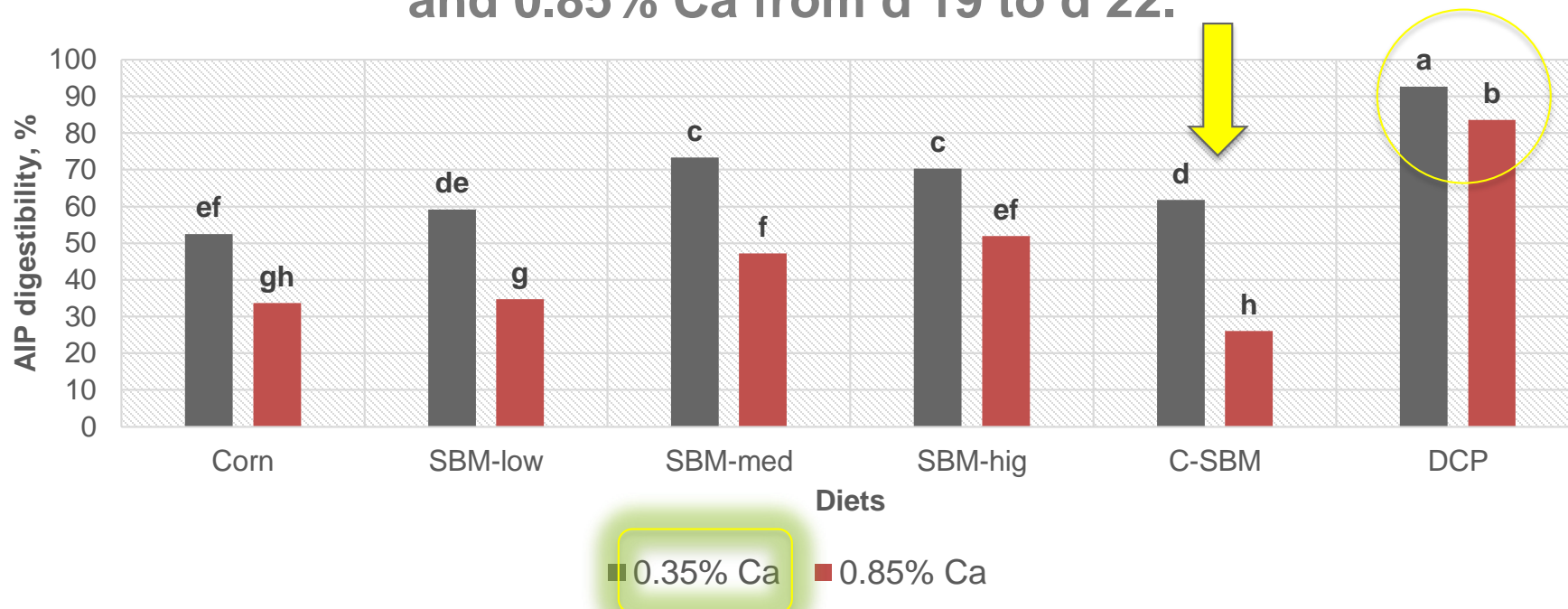
Experimental design:

- ▶ 14 treatments, 8 Replicates, 5 birds per rep: CRBD
- ▶ 7 Diets (corn, 3 levels SBM (20, 40, and 60%), C-SBM (60/30%), Dical, and P-free)
- ▶ Supplement: two fixed Ca levels 0.35 and 0.85%

Apparent Ileal P digestibility, %

P-values:	
Diet	<0.001
Ca level	<0.001
Diet x Ca level	<0.001

P digestibility, % in birds fed diets containing 0.35 and 0.85% Ca from d 19 to d 22.



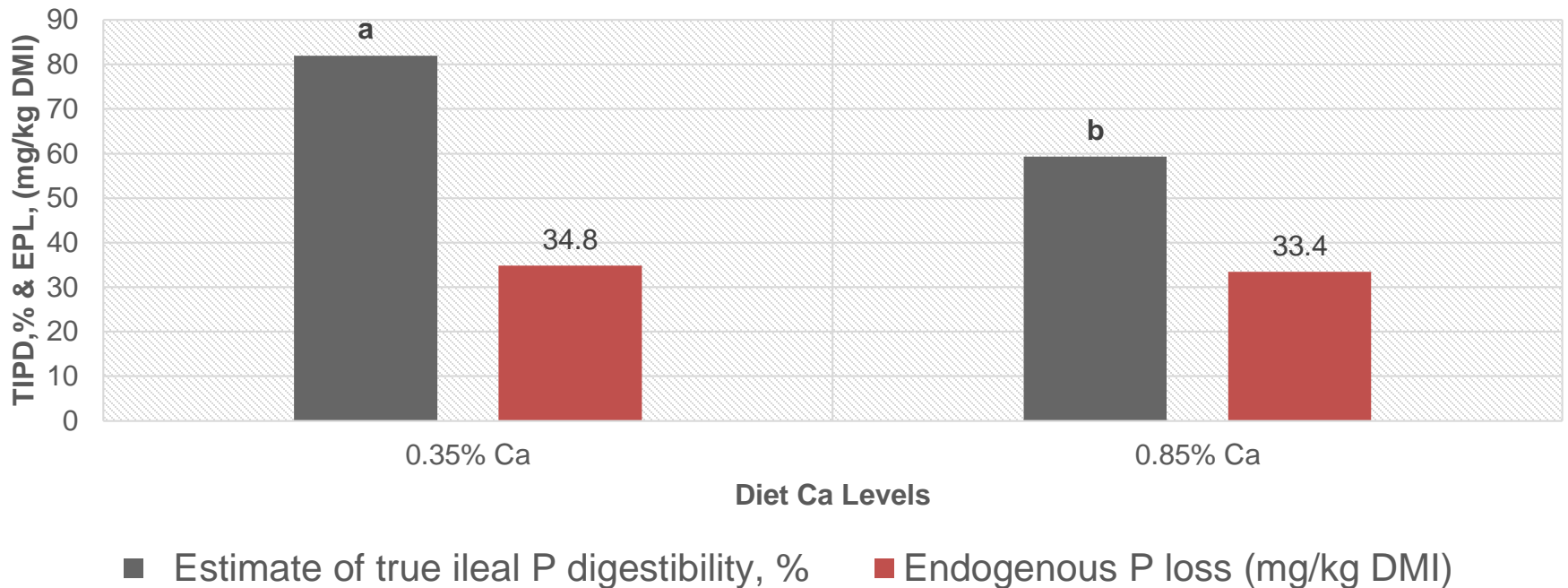
a-h Means of the same variable with different superscripts differ (P < 0.05)



TIPD of SBM containing 0.35% or 0.85% Ca in broilers

P-values:	
TIPD	<0.001
EPL	= 0.938

Regression of ileal P output vs. P intake



a-b Means of the same variable with different superscripts differ (P < 0.05)



“We may be able to substitute nuclear power for coal, and plastic for wood, and yeast for meat, and friendliness for isolation—but for P there is neither substitute nor replacement.”

Isaac Asimov (1974)

THANK YOU!

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