



# Uptake of gentamicin and oxytetracycline by plants irrigated with contaminated irrigation water

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## Introduction

Veterinary Antibiotics:

- 1- Applied to large animal's feed and poultry drinking water as a preventive agent and to increase growth
- 2- After excretion, it may find its way to agriculture soil or irrigation water and this affects the quality of produce
- 3- It may cause antimicrobial resistance in the soil

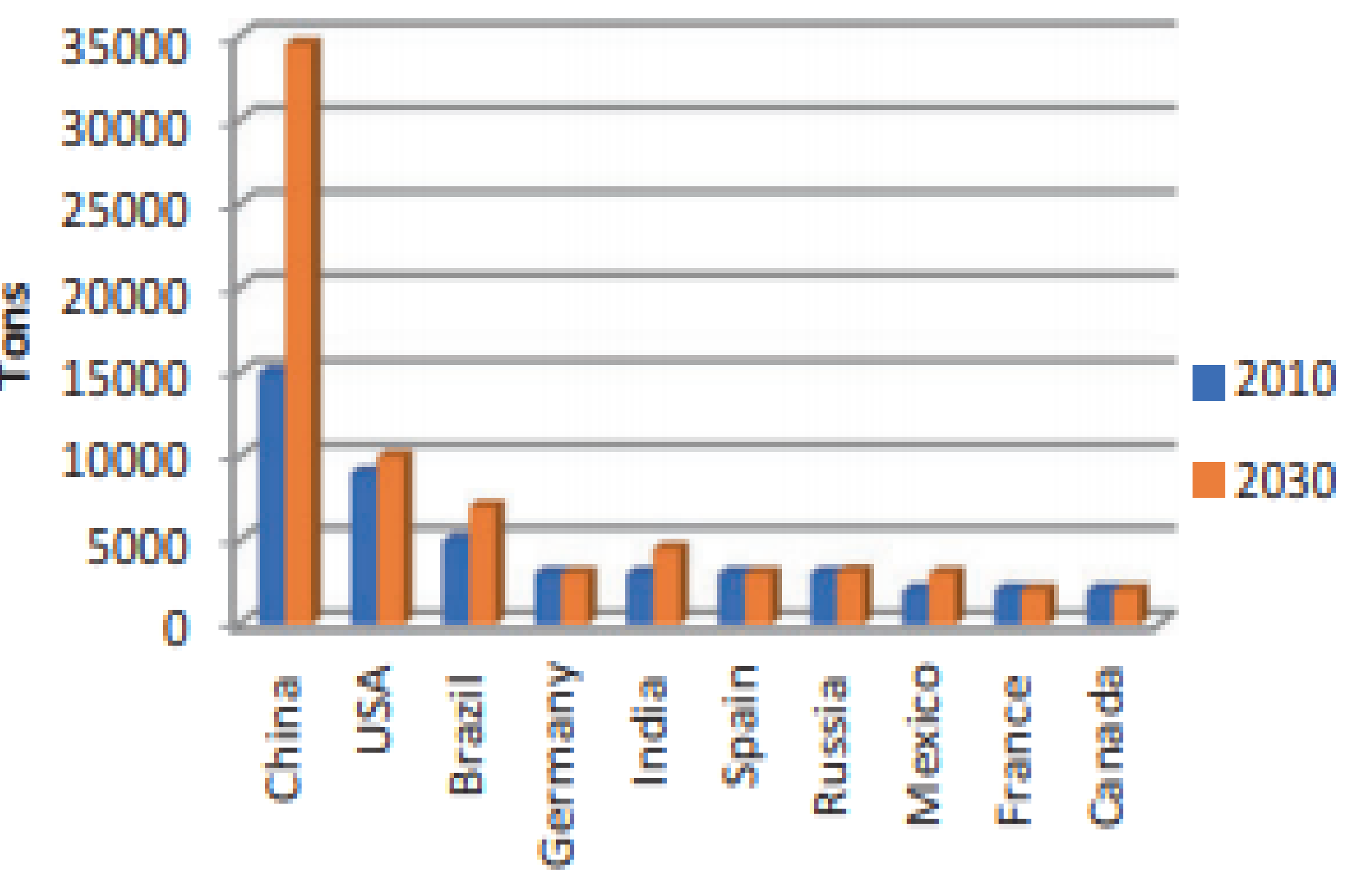


Figure 1. Antibiotics consumption in top ten countries in livestock industry

## Purpose

- Measure the uptake of **Gentamicin** and **Oxytetracycline** by lettuce, radish and cucumber from contaminated irrigation water.
- Effect of manure on antibiotic absorption

## Methods

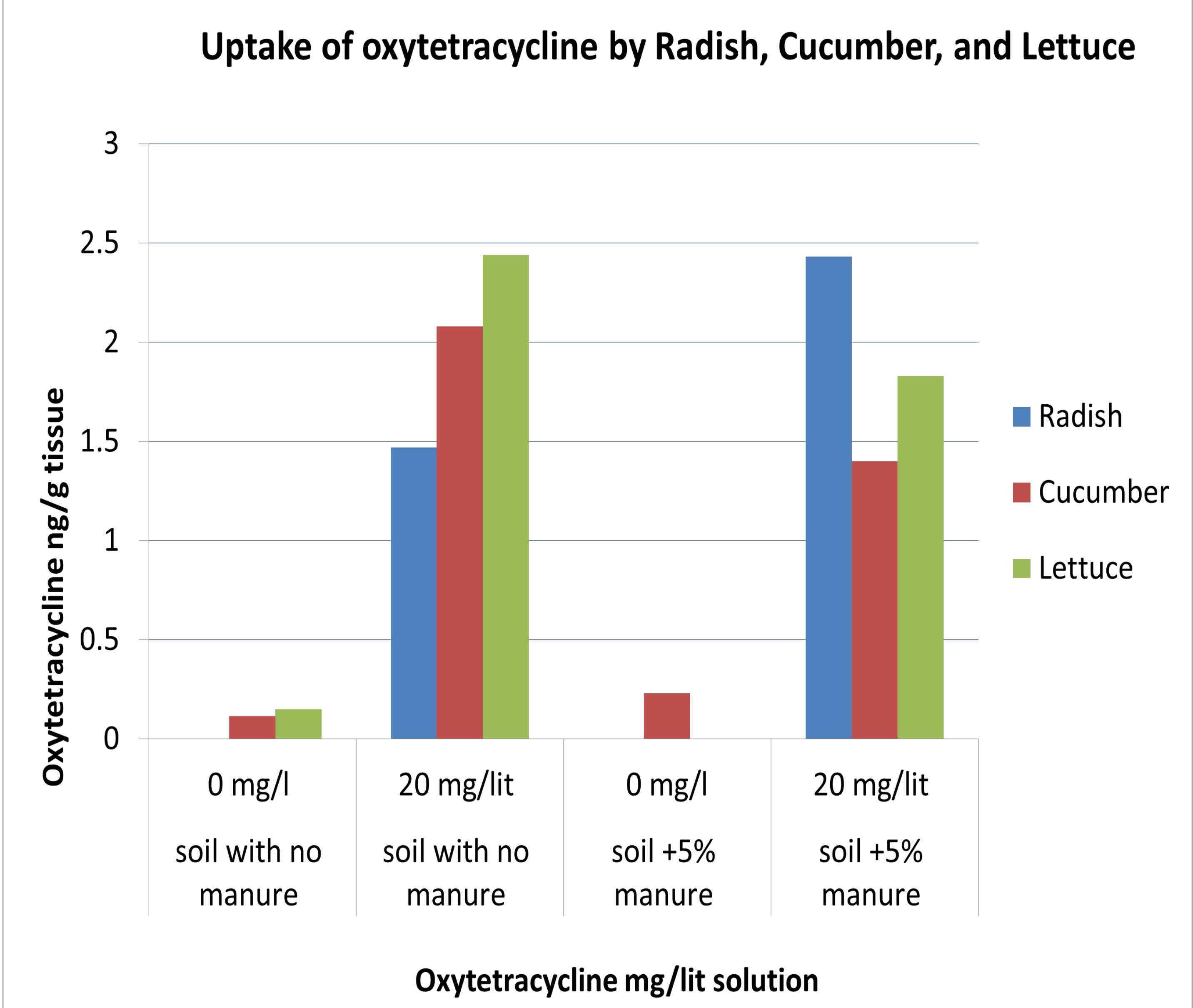
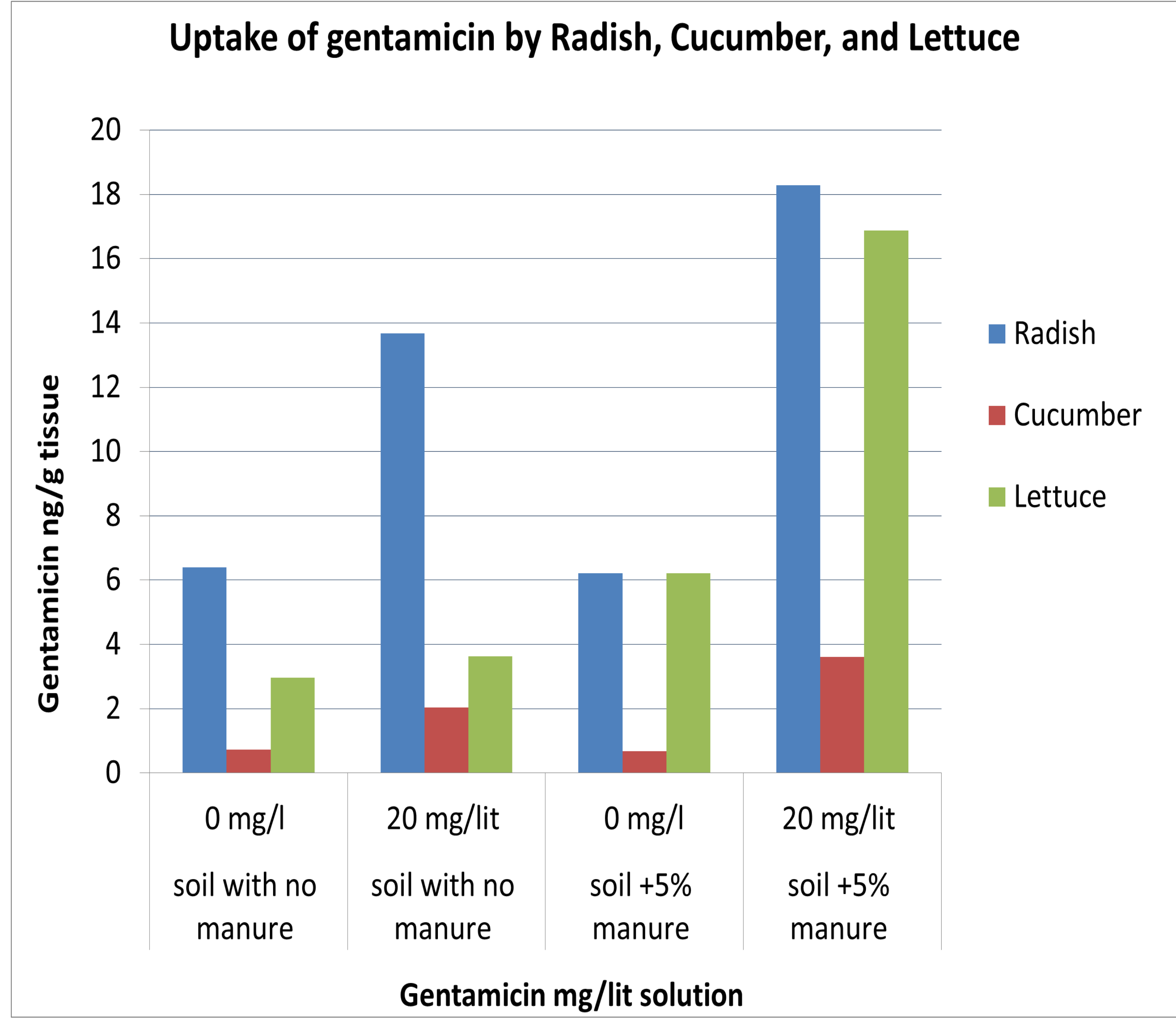
A greenhouse pot experiment on **radish**, **cucumber**, and **lettuce** with 6 treatments and 3 replicates was conducted at AUB in June 2020.

The 6 treatments were:

- 1- Soil irrigated with fresh water
- 2- Soil irrigated with 20 mg/lit oxytetracycline
- 3- Soil irrigated with 20 mg/lit gentamicin
- 4- Soil +5% manure irrigated with fresh water
- 5- Soil +5% manure irrigated with 20 mg/lit oxytetracycline
- 6- Soil +5% manure irrigated with 20 mg/lit gentamicin

ELISA was used for antibiotic analysis

## Results and Discussion



- Gentamicin uptake was higher than oxytetracycline
- The 5% added manure caused an increase in gentamicin uptake

## Implications

- Control haphazard use of antibiotics
- Use antibiotics for treating sick animals and not as preventive agent
- Expand animal husbandry, hygiene, and health management on farms and improve vaccination programs

## Literature Cited

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