

Global Agricultural Antibiotic Use “Cropping Up” More Often Than Previously Thought

Antibiotics have revolutionized healthcare and are widely used in medical and veterinary practice. But, with the widespread use of antibiotics, the spread of antibiotic-resistant bacteria has become a global public health concern. Antibiotic use creates selection pressure, which favors the survival of resistant bacteria, i.e., those that contain genes that confer resistance. The greater the use of antibiotics, the greater the chances of resistant populations arising. These resistant bacteria can transfer their resistance genes to other types of bacteria, creating additional problems. These problems are widely acknowledged in the medical and veterinary fields. However, it is unknown if similar issues are present in crop agriculture, as there has been a dearth of information on the use of antibiotics on crop plants.

In a [recent joint study](#) undertaken by international organizations involved in human, animal, and plant health, it was found that only 3% of the 158 countries surveyed reported any record-keeping of the antibiotics used on crops, indicating that the use of antibiotics on crops could be far more widespread than reported.

Now, in a new study, researchers at the Centre for Agriculture and Bioscience International in the UK analyzed data on antibiotic recommendations made by agricultural advisors. The data was collected by Plantwise, a program providing agricultural training and support across 32 countries. They observed large regional variations in the recommendation of antibiotic use. Antibiotics were being recommended against plant diseases in the WHO regions of the Americas, Western Pacific, Eastern Mediterranean, and South East Asia. Interestingly, there were no recommendations for antibiotic use on crop plants in Africa. Streptomycin, tetracycline, and kasugamycin were the most frequently recommended antibiotics, and rice received far more antibiotic recommendations than any other crop. The data also revealed that some advisors appeared to recommend antibiotics prophylactically (to prevent bacterial diseases) as they were recommended against problems that are not cured by antibiotic use.

The lack of monitoring and documentation of antibiotic use on crops makes it very difficult to assess its contribution to the ever-growing threat of antibiotic resistance. Furthermore, crop use of antibiotics provides additional threats as many crops are consumed raw, allowing antibiotic resistant bacteria, and their resistance genes, into the gut. Once inside the gut, transfer of resistance genes to human and animal pathogens is possible, which could contribute to the growing resistance problem.

Overall, the study highlights the need for more research and rigorous measures to monitor the use of antibiotics in crop cultivation, and its findings have important implications in helping curb the spread of antibiotic resistance. This paper will help inform the debate on the use of antibiotics in agriculture and allow regulators and policymakers to make informed decisions on antibiotics in global crop production.

Link to the original journal article:

<https://cabiagbio.biomedcentral.com/articles/10.1186/s43170-020-00001-y>

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