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LETTERS

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Need for increased world food production

SIR: In his letter in the Feb. 21, page 2, issue of C&EN, Paul R. Wunz Jr. expresses a point made by many; namely, why produce more food if it only leads to more people which in turn creates further demands on the food system? Why not concentrate on population control?

There is no question that the balance between people and food must be brought under control. In the short-term of the next several decades, however, there is no choice but to produce more food if we rule out the calamities of mass starvation, major war, or drastic reductions in standards of living as a solution to the problem. If India, for example, beginning in 1980, had reduced the birth rate to the replacement value (two children per couple), its population would continue to expand from 675 million to over 840 million by the year 2000. In fact, world population is expected to double by approximately the year 2020. This means world food production must increase by at least as much as it has since the dawn of agriculture 12,000 years ago, and this must be done without adding significantly more land to the system.

Faced with this challenge, it is tempting to believe that birth control, not food production, is the simple answer. I point out, however, that virtually all authorities on world hunger agree that poverty, not overpopulation, is the major problem. And population and poverty are not necessarily related: The world's three most densely populated nations—Singapore, The Netherlands, and Japan—have no food problems.

So, in the short-term, we must increase food production significantly. There is every reason to believe the world will be able to feed itself in the years ahead providing we more fully implement existing technologies, vigorously pursue the promise of new chemical and agricultural research, improve distribution, and initiate enlightened governmental policies where needed.

If these practices are followed, we can meet world food needs and also buy the time necessary to achieve population stabilization and avoid social unrest created by starvation and hunger.

Bryant W. Rossiter, *Chairman*
CHEMRAWN II, International Conference on Chemistry & World Food Supplies: The New Frontiers

Regulating substances by animal testing

SIR: In his letter on "High-dose cancer experiments" (C&EN, Feb. 14, page 4), Joel B. Swartz considers the merits of animal tests for the regulation of carcinogenic chemicals and concludes: "In sum there is excellent scientific basis for classifying and regulating substances on the basis of high-dose animal experiments."

In the past, this view was widely accepted. In fact, it was the basis for the Delaney Clause regulating the suitability of food additives. Since then, however, it has lost supporters until today it can no longer be defended. It was medical science that finally clarified the value of animal testing in a publication by the Council on Scientific Affairs of the American Medical Association entitled "Carcinogen Regulation" (*JAMA*, July 17, 1981, page 253). It includes the following paragraph:

"The Council's consultants agree that to identify carcinogenicity in animal tests does not per se predict either risk or outcome in a human experience. Moreover, an agent can metabolize differently in diverse species and even strains of mice. Thus, a substance can be carcinogenic for certain organs in one species but relatively harmless in other organs or in other species."

The National Research Council's Committee on Diet, Nutrition, and Cancer expressed a similar opinion—quoted below—in its report "Diet, Nutrition, and Cancer," page 316, National Academy Press, Washington, D.C., 1982:

"... Laboratory animals can be regarded as uniform and controlled populations 'standing-in' for human beings. However, the animals are not human, and the etiology of the cancers they develop may not duplicate that for cancers in humans."

In view of these pronouncements, coming from highly qualified scientific judges, statements, such as "there is scientific reason for regulating substances solely on the basis of high-dose animal experiments," are misleading and incorrect.

Ernest W. Volkman
Fellow, AAAS, Latrobe, Pa.

The proposed R&D budget

SIR: I think it is a sad commentary on the priorities of this Administration (and by reflection on the American people) that 65% of the proposed R&D budget is aimed at improving our war-making capacity, while a

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