

## Healthy soil, healthy population

**D**octors of BC's Environmental Health Committee (EHC) recommends that the Agricultural Land Reserve Commission remain forceful, science-based, and transparent in protecting our remaining life-sustaining reserves of fertile, arable land in British Columbia. Since most of our province is mountainous, such land is very limited, and human health will suffer if we do not have access to healthy, uncontaminated, locally grown food.

For the last 5 years, the EHC has promoted limiting the use of antibiotics in livestock for growth promotion. The reason for this is the development of antibiotic-resistant bacteria that has been released into the environment. This release starts in manure ponds but floods into ditches, streams, larger bodies of water, and surrounding soil, eventually altering soil organisms. Not only does this damage the environment but it also decreases the effectiveness of antibiotics, which have, until recently, been effective in treating most bacterial infections.

It was with these concerns that I attended the Fourth International Conference on Sustainability Science in France, in September 2013. During his presentation, "Why should we change agriculture?" Professor Daniel Nahon clarified the balance between soil creation and its destruction, relative to its ability to provide human nutrition.<sup>1</sup> He highlighted global warming as the most published topic on the subject, but other factors also contribute to the loss of land that is suitable for growing crops to feed people.

Soil creation occurs through the

breakdown of continental crust rock into croplable soil. Transforming 10 to 30 cm of bedrock into cropland takes 20 000 to 30 000 years. Thus, soils are a nonrenewable resource on the human-lifetime scale. Accelerated degradation of cropland is a potential disaster, with the world reserve now under 600 million hectares. Major loss comes from soil destruction and soil sterilization. Erosion is the primary cause of soil destruction. Damaging ploughing practices and forest clearing for urbanization and herding result in erosion rates of 10 tons per hectare per year over 80% of Earth's arable land. This shifts the balance to where destruction occurs 10 to 100 times faster than formation. In 1900 only 14% of the population lived in cities. In 2000, 54% of the population were urban dwellers, causing increased soil destruction of arable land. The United States loses 100 square metres per second. China loses 500 square metres per second. These two countries alone account for development that destroys five times the area of Denmark each year! Awareness and planning can reduce this loss in the future.

By comparing current trends of global food production to current

global population increases, it is possible to plot the point, three centuries from now, where the population will outstrip its ability to grow enough food to feed itself. Will this point change with more rapid loss of soil or be delayed by conservation?

Being aware of destruction rates and advocating for protection of Earth's vital food producing resource with advanced planning are the first steps toward avoiding future food security crises. British Columbia needs to protect its limited farmland to grow food. When we waste this valuable resource on urban and industrial development, we do so at our peril. The Agricultural Land Reserve must become more effective at preserving this resource into the future.

— Bill Mackie, MD

**Environmental Health Committee**

### Reference

1. Nahon D. Why should we change agriculture? Presented at the Fourth International Conference on Sustainability Science, Aix-Marseille University, France, 16 September 2013.

*This article is the opinion of the Council on Health Promotion and has not been peer reviewed by the BCMJ Editorial Board.*

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