Potato production and utilization in the world

D. F. VAN DER ZAAG

Research Station for Arable Farming, Lelystad, the Netherlands

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Summary

Potato production and utilization in the period 1962-1973 and future developments are discussed for Europe, North America and the Tropics. Despite an expected increase in acreage of potatoes in the tropics, the total acreage of potatoes for human consumption will continue to decrease, mainly because of a regular increase in yield per ha. Comparisons are made between potato production for stockfeed or for starch, and the production of barley and maize. Future developments of stockfeed potatoes can tentatively be predicted in relation to price movements for barley and maize, and of potatoes for starch production in relation to price movements for maize. The energy and protein production of potatoes per unit area per unit time is high in the tropics in comparison with the main tropical food crops. The potato crop could help to avoid one-sided diets and could improve food production, if the production in the tropics were enlarged considerably. Circumstances seem to be favourable for such an increase.

Introduction

The potato is an important food crop, especially in the northern temperate zone. In terms of total production of energy for human consumption it is fifth to wheat, maize, rice and barley, though both in acreage and energy production the potato is much smaller than the main food crops (Table 5). Soybeans, sorghum and millets are not far behind the potatoes. In addition, the nutritive value of potatoes is high, due mainly to the biological value of the protein, the vitamin content, especially C, and the content of some minerals (see further Burton, 1966, 1974). In view of these facts an attempt will be made to discuss the development and utilization of the crop.

It is obvious that some restrictions should be made. Only a rather short period from 1962 to 1973 has been considered, and the main attention has been directed to two regions, viz North America + Europe (temperate zone) and the countries between 30° N. Lat. and 30° S. Lat. (tropical zone). Regions or countries outside these two regions are only briefly discussed.

In the first part of the paper data are given on production and utilization. An
Fig. 1. Development of potato production in the world (o), in Europe (incl. USSR) + North America (x), and in the tropics (●). The lines show the percentages increase or decrease calculated from the regression equations given. (Data derived from FAO Production Yearbook 1973).

\[
\begin{align*}
1) \dot{y} &= 2.4091 - 175.1x \\
    &= 116.3 + 1.9x \\
    &= 281.0 + 2.2x \\
    &\text{Area (100 = 23916} \times 10^3 \text{ ha) (100 = 118} \times 10^2 \text{ kg/ha) (100 = 2832} \times 10^3 \text{ tons) r = +0.79}}
\end{align*}
\]

\[
\begin{align*}
2) \dot{y} &= 18500 - 279.1x \\
    &= 126.4 + 2.7x \\
    &= 220.6 + 7.0x - 0.5x^2 \\
    &\text{Yield (100 = 18221} \times 10^3 \text{ ha) (100 = 129} \times 10^2 \text{ kg/ha) (100 = 2271} \times 10^3 \text{ tons) r = +0.51}}
\end{align*}
\]

\[
\begin{align*}
3) \dot{y} &= 1410 + 34.9x \\
    &= 62.4 + 1.7x \\
    &= 8.6 + 0.5x \\
    &\text{Production (100 = 1445} \times 10^3 \text{ ha) (100 = 64} \times 10^2 \text{ kg/ha) (100 = 92} \times 10^3 \text{ tons) r = +0.97}}
\end{align*}
\]

Area - Fläche - Superficie; Yield - Ertrag - Rendement


Fig. 1. Développement de la production de pommes de terre dans le monde (o), en Europe (y compris URSS) + Amérique du Nord (x) et tropiques (●). Les courbes les pourcentages d’augmentation ou de diminution calculé à l’aide des équations de régression, indiquées en bas de la figure. (Données extraite du FAO Production Yearbook 1973.)

attempt has been made to indicate the trends as clearly as possible, so that the text could be kept short. In the second part the various factors that may influence future developments are considered, and some conclusions have been drawn. These may be open to criticism but nevertheless provide some guidelines. To keep the length of this paper within certain limits the topic could only be discussed broadly, and no attempt has been made to give detailed information.

Many data given here are derived from FAO Production Yearbooks 1967, 1970,