Erwin Baur, "The Experimental Creation of More Productive Crop Species" (1927)

Abstract

The founding director of the Kaiser Wilhelm Institute (KWI) for Breeding Research in Müncheberg, Erwin Baur (1875–1933) was an important proponent of racial hygiene in Germany at the beginning of the twentieth century. His eugenic thinking comes through clearly in the present text, which was written when he was the director of the Institute for Genetics at the Agricultural College of Berlin in Dahlem. Baur was also involved in breeding crop plants, for instance, sweet lupine, an edible variant of the protein-rich lupine. Sweet lupine was supposed to help close the protein gap. In the article below, Baur advocates strongly for expanding institutional research on breeding. It was an exhortation that he repeated in numerous other publications and lectures.

Source

The Experimental Creation of More Productive Crop Species[1]
By Erwin Baur, Berlin.
(From the Institute for Genetics.)

[…]

Progress in the field of breeding is based on the realization that individual differences between the various breeds are inherited *independently* of one another. I can give you a very simple example to make the principle clear, and, although I am actually talking about crop *plants*, I want to use a *zoological* example, because they are always somewhat easier to understand. If we cross a black rabbit with a white one, both of them purebred, then the offspring of this crossing are black. And if we cross these black offspring with each other, white and black animals show up in the next generation, the grandchild generation of the original crossing. The two traits "black" and "white" do not "mix." That is an important finding.

Another such finding is this: if we cross two breeds that differ in *two* traits, for example, a black straight-eared rabbit and a white lop-eared rabbit, then the hybrids are black and have straight ears; the next generation displays that which has provided the basis for all of modern breeding, that is, the traits *black/white* and *straight ears/floppy ears* are inherited *independently* of each other and are distributed in all possible combinations in the subsequent generation. The following combinations then occur: black with straight ears, black with floppy ears, white with straight ears, and white with floppy ears. You can see that we had *two different traits*, *four possible combinations*, and consequently *four sorts of animals* in the second bastard generation [*Bastardgeneration*].

[…]

Already today, it is often theoretically possible to predict exactly which options are available for improving performance in a particular area, but implementing this sort of breeding requires extraordinarily large, intensive efforts. Still, you can see that we have moved completely beyond the state of raw empiricism, of simply feeling our way. We analyze our crop plants as much as possible through extensive heredity experiments. We are aware of very specific hereditary factors that form the basis for performance, and today it is the most important task of breeding to produce the best *combination* of hereditary factors already recognizable right now. We know that the plants that approach this utterly attainable ideal must outperform the best types of existing crop plants.

[…]

There are a number of other such tasks that must be taken up today. As you all know, we still derive far too little protein from our fields. We still import concentrated feed and protein feed from abroad. If we could succeed in breeding a yellow lupine that is not poisonous and not bitter in taste, then the whole problem would be solved in one fell swoop; that would probably also largely resolve the whole economic calamity with which our light soil, our entire eastern region, is struggling today. This breeding problem is therefore also extraordinarily important from an economic perspective, and, given everything we know today, it is probably solvable, but only if studies are begun on a scale that private breeding companies cannot attain today. For such studies, significant funds have to be invested; then it is possible. If the funds are not there, then the work serves no purpose. Either it is done right or not at all.

[…]

We must, under all circumstances, devote more funds to the study and genetic improvement of our crop plants; the same applies to animals and to our domestic animals. If we do not do that, then we will fall quite hopelessly behind foreign countries in this field. Even in the field of purely theoretical hereditary science we are already behind in Germany. Today, in North America there are already more than a hundred special institutes for hereditary science. Every American university has one. In Germany, we have only two: the Correns Institute and my institute, and all the others in this country who work in the field of hereditary science are professors of botany and zoology who still have to perform their other professional activities, and who, above all, do not have the funds to work experimentally in this field, as they would like to do. In particular, we here in Germany completely lack special institutes for working with crop plants and domestic animals. In Russia alone, at least ten times as much is spent for this purpose as here in Germany. It is humiliating for us, but it makes no sense to keep our heads in the sand. For example, in Russia there is a very large institute for breeding and genetic studies on crop plants with an annual budget of 1.2 million gold rubles. That is ten times more than is spent in Germany on all genetic research. The situation is similar in other countries. North America in particular, as I said before, is accomplishing a great deal in this field, and it is absolutely essential for us to make up for this deficit and to try to restore connections to great science abroad. Otherwise, whatever happens, our failure to keep pace *scientifically* will also result in our falling behind *economically*, and that is what we can least afford today.

NOTES

[1] A lecture held in conjunction with the general meeting of the Kaiser Wilhelm Society for the Advancement of Science on June 26 in Dresden.

Source: Erwin Baur, “Die experimentelle Erzeugung leistungsfähiger Rassen unserer Kulturpflanzen,” in *Die Naturwissenschaften,* Fünfzehnter Jahrgang, Heft 36 (9. September 1927), pp. 721–25.

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