2 Food, Biotechnology and Intellectual Property

This chapter will present the basic relationships between food and intellectual property protection, as they are related through both the plant breeding derived from the Mendelian principles of heredity1 which took place throughout the twentieth century, as well as the new biotechnology, which developed in the last 25-30 years.

The human rights dimensions of food, within a framework of policies relating to food, will be presented initially. Then the developments of modern biotechnology will be outlined. Finally, a description and an analysis of the evolution of intellectual property protection, as well as its justifications and characteristics, will be presented.

2.1 Food

This book does not intend to discuss the various aspects of food per se; rather, it will focus on the legal obligations relating to food. Food is understood as human intake.2 Furthermore, for the purpose of this book, it is useful to distinguish between food as a nourishment in a solid form, as opposed to a liquid form. In other contexts, it is highly relevant to consider water as a crucial element in food.

This elaboration of the right to food is preceded by a confirmation by the Committee on Economic, Social and Cultural Rights that 840 million persons all over the world are chronically hungry. The Committee then continues: “Fundamentally, the roots of the problem of hunger and malnutrition are not lack of food but lack of access to available food…”3

This understanding of what affects the right to food must be noted. In general, there is agreement that there is sufficient food for all in the world today. Highly unequal production in various regions, combined with ecological degradation and market failures, result in the present pattern of over-consumption of food in certain regions and under-consumption in others.

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1 In brief, Gregor Mendel (1822-1884) was the first to explain the transmission of hereditary traits from parent plants to offspring.
2 Feed, on the other hand, is for animal intake.
In this study, the focus is on how various forms of ownership and control over the reproductive material, primarily seeds, affect the realization of the right to food. This analysis is based on the relationship between the production process, and the subsequent distribution of this food. Successful research efforts might result in a new plant variety or a plant with new and improved characteristics. These results might qualify for intellectual property protection under national law, in accordance with the TRIPS requirements.

The emphasis in this study on the technical and legal aspects relating to food does not imply that food is primarily considered in a technological perspective. In order to understand the rationality of the different technological and legal processes relating to food which have taken place recently, however, this study will focus on the research efforts to achieve higher yields.

As with all living resources, food plants are able to reproduce themselves. Most farming is based on the sowing of seeds, which is a form of interference in the natural reproduction. A new harvest generates new seeds, and farmers have traditionally reused their own seed. After a certain period, the yields deteriorate and the farmers need to have access to new seeds. This so-called ‘replacement rate’ differs, but more and more farmers purchase new seeds for every new season.

Food production is the result of conscious decisions by the farmer regarding the control over, cost of and quality of seeds. Such decisions are taken by the individual farmer every year, based on, *inter alia*, traditional farming practices, contemporary practice of other farmers, new seeds or information on such seeds, and the introduction of new legislation and the possible consequences of acting in violation of such legislation. Farmers take their decisions with the purpose of maximizing the production and the revenue from producing food. For many farmers, stability and predictability are, however, as important as the potential increased revenue they can gain from sowing new and improved seeds. One can at least assume that farmers will be able to make conscious decisions on whether the increased costs from purchasing seeds from private seed traders will be repaid by a proportionate increase in yields.

Food is a natural, renewable resource, harvested from food plants. For the purpose of this study, it is important to note the difference between the phenotype and the genotype of a plant. The first is the physical appearance of the organism or plant. This is obviously the property of the farmer. The genotype is the genetic characteristic of an organism. The genetic construction is not visible *per se*, but might become visible as the plant grows. Increasingly, the genetic characteristics of certain seeds are the subject of various forms of genetic modification, which might result in patent protection, provided that the legal eligibility requirements are fulfilled.

The branding and selling of new seeds is subject to a certain price, and there is little disagreement that such seeds are a commercial product. The subsequent reuse of the seeds after the initial harvest is a more conflicting issue. The granting of patent or plant variety protection – together with specific agreements with the individual purchaser

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4 Kloppenburg and Kleinmann 1988, pp. 281-282, point to the rationality behind maintaining genetic diversity in the field, where the objective was “…not high yield, but consistency of production.”