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ADAPTED QUALITY PROTEIN MAIZE FOR BROILER FEEDS

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Maize has low nutritional quality due to poor content of essential amino acids lysine and tryptophan in the dominant seed storage protein fraction, zeins. However, Quality Protein Maize (QPM), a variety of *opaque2* maize but with good agronomic traits, can have 60% to 100% higher content of lysine than standard maize. Monogastric animals (pigs, poultry, fish), like humans, cannot synthesize lysine and tryptophan *de novo* and thus these amino acids must be supplied through diets. QPM was primarily developed for human consumption to overcome malnutrition in countries where maize is staple food. Thus, QPM is of tropical origin and its adaptation to temperate regions is frequently hampered by the retained exotic germplasm. Development of adapted QPM hybrids is mainly aimed for feed industry. It has been shown that substituting standard maize with QPM in feed diets could be profitable due to improved weight gain, feed conversion ratio and decreasing of dietary lysine supplementation. Maize Research Institute, Zemun Polje has a program on converting elite inbred lines through marker assisted breeding into their QPM counterparts and developing commercial QPM hybrids. Up to now, two inbred lines have been converted, while eight lines have passed through three or four generations of backcrossing and one generation of selfing. Tryptophan content in the converted selfed plants was in the range from 0.080 to 0.093. Besides developing QPM counterparts of commercial hybrids, one QPM hybrid obtained by crossing a converted elite inbred line and an adapted tropical inbred line was developed and tested over different locations and in different years. This hybrid is currently used in feeding experiments with the objective to test effects of replacing standard maize with QPM in diets on broiler performances.

Key words: *adapted QPM, inbred lines, hybrids, lysine, tryptophan*.