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Improving the durability of tillage tools through surface modification—a review.

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ABSTRACT:

Farming tools are often exposed to high wear rate in dry agricultural land areas. This makes the farming activity to have problems of recurrent labour, idle time, and the extra expenses in replacing the damaged implements like ploughshares. Damaged tools end up in poor tillage, poor planting efficiency, and higher fuel costs. The major phenomena responsible for this is their susceptibility to wear, corrosion, and tribo-corrosion. The engineers are seeking means of enhancing the wear characteristic of implements used for farming activities to increase their durability. Increasing durability emanates from an investigation of corrosion, wear, and tear model of machine parts during tillage operation. It helps to fabricate standard tillage material components to extend their operating life. In this regard, this article gives a brief review on the working conditions of tillage tools, abrasive wear mechanism and wear of tillage tools, factors influencing wear of tools, different technologies used in combating wear and corrosion in agriculture and other industries, and suggestion was made on the promising novel findings discovered in the field in recent times which suggest a prospective breakthrough towards wear and corrosion in agricultural industry.