Cry1Ab protein from Bt corn can be introduced into soil by incorporation of plant straws after harvest of corn, by root exudates, and probably by input from pollen during tasseling; while the incorporation of straws is believed to be the dominant input pathway. In this study, straws of two Bt corn varieties 5422Bt1 and 5422CBCL, as well as their conventional corn 5422 were continuously returned into soil for five times, with the interval of 120 d and amount of 0.1 g·g\(^{-1}\) per time, aiming to investigate the residues of Cry1Ab protein released from Bt corn straws, and to assess its effects on the contents of soil nutrients including organic matter, alkaline nitrogen, available phosphorus, available potassium, total nitrogen, total phosphorus and total potassium. The results showed that Cry1Ab protein from the two Bt corn straws degraded rapidly in soil, more than 50% of which was degraded within one week, and 90% within half of a month. In the termination day of the experiment (600 d), 1.21 or 1.24 ng·g\(^{-1}\) Cry1Ab protein was detected in the soil returned with 5422Bt1 or 5422CBCL straws, suggesting that Cry1Ab protein from Bt corn straws could not accumulate during their continuous return into soil. The soil nutrients contents increased with the return frequency of corn straws, and differed with corn variety. In general, after 5422Bt1 straws were continuously returned into soil for five times, organic matter, alkaline nitrogen, available phosphorus, available potassium and total nitrogen in soil were increased, but total phosphorus and total potassium were not changed. Nevertheless, continuous return of 5422CBCL straws into soil for five times decreased the contents of organic matter, alkaline nitrogen and available phosphorus, increased the contents of available potassium and total nitrogen, but did not change the contents of total phosphorus and total potassium.

Keywords: Bt corn, Continuous return of straws, Cry1Ab protein, Persistence