

Table S1 Results of on-site survey in chosen enterprises

Enterprises	Personnel protective measure	Number of subjects	Basic situation on site	Operation method/occupational exposure time
A	Workers in packing position Wore normal gauze mask and gloves	296	Closed production. The site environment where the packaging position was located was poor, and the concentration of glyphosate dust in the packing position was large	Packaging post: fixed-point operation, 8 h/d Other posts: inspection operation, 3 h/d Job content: manual replacement of packaging bags and feed
B	Workers in packing and centrifugal posts wore 3M dust respirator	217	The devices of centrifugation and packaging were located outdoors, with a ceiling above. Other devices were in the indoor arrangement. The concentration of glyphosate dust in the packing position was large	Packaging post: fixed-point operation, 6 h/d Other posts: inspection operation, 2 h/d Job content: manual replacement of packaging bags, weighing, feed
C	Nearly no personal protective equipment was found	185	The devices were arranged indoors, and the site environment was well organized	Packaging post: fixed-point operation, 6 h/d Other posts: inspection operation, 3 h/d Job content: manual replacement of packaging bags and feed
D	Workers in packing position Wore normal gauze mask	93	All the devices were arranged indoors. The site environment was unstable	Packaging post: fixed-point operation, 8 h/d Other posts: inspection operation, 3 h/d Job content: manual replacement of packaging bags and cleaning up the residue
E	Nearly no personal protective equipment was found	94	The devices were all indoor layout, and the site environment was well organized	Packaging post: fixed-point operation, 8 h/d Other posts: inspection operation, 3 h/d Job content: manual replacement of packaging bags and feed

Table S2 OELs and LD₅₀ of typical organophosphorus pesticide with low toxicity

Organophosphorus pesticide types	LD ₅₀ (rat) (mg/kg)	NOAEL (mg/kg/d)	OEL (mg/m ³)	
			PC-TWA	PC-STEL
Glyphosate	5,000	362	–	–
Malathion	1,800	100	2	–
Trichlorfon	560	100	0.5	1
Acephate	820	30	0.3	–

OEL, occupational exposure limit; LD₅₀, median lethal dose; NOAEL, no observed adverse effect level; PC-TWA, permissible concentration-time weighted average; PC-STEL, permissible concentration-short term exposure limit.