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Exploring Disruption-Resilient Models of Supply Chains

The COVID-19 outbreak necessitated strict lockdowns to control infections.

But the lockdowns, combined with a labour shortage due to rising infections, disrupted supply chains.

Based on a comprehensive literature review, a truck-drone synchronized delivery system is recommended to quickly reach customers in infection hot zones while maintaining social distancing.

New simulation model of food supply chain (Public Distribution System) operations was created for three scenarios for a six-month period:

- Normal operation
- One central facility shut down due to COVID-19
- Backup facility present

Shows that a backup warehouse at strategic locations can help maintain required supply levels.

These models of distribution and delivery can help devise robust action plans to tackle pandemic-related disruptions to supply chains for essential services.