

## Authorship

Section	Primary Writer(s)	Primary Editor(s)
Abstract		
Abstract	Vijay Mistry Benjamin Penti Isabella DeFronzo	Benjamin Penti James Teague Isabella DeFronzo
Acknowledgements	Isabella DeFronzo	Vijay Mistry
Introduction and Background		
1.0 Unpredictable Weather and its Impact on Urban Beekeeping	Isabella DeFronzo Vijay Mistry	Benjamin Penti James Teague
2.0 The Dangers of Shifting Seasonality for Beekeepers	Vijay Mistry James Teague	Team
2.1 The Impact of Shifting Seasons on Bee Health	Benjamin Penti	Team
2.2 Practices Urban Beekeepers Use to Adapt to Seasonality	Isabella DeFronzo	Team
Methodology		
3.0 Methodology	Isabella DeFronzo	Team
3.1 Overview of Methods Used	Team	Team
3.1.1 Objective 1: Identified Relevant Weather Patterns that Affect Beekeeping	James Teague Vijay Mistry	Team
3.1.2 Objective 2: Characterize Key Practices of Urban Beekeeping	James Teague Vijay Mistry	Team

3.1.3 Objective 3: Identified Technology used to Mitigate Seasonal Impact on Beekeeping	Isabella DeFronzo Benjamin Penti	Team
3.1.4 Objective 4: Create an App Proposal to Help Beekeepers Adapt Practices.	Vijay Mistry	Benjamin Penti Isabella DeFronzo James Teague Vijay Mistry
Results and Discussion		
Results Introduction	Benjamin Penti	Isabella DeFronzo James Teague
1.0 Perspective of Beekeeping Seasonality	Benjamin Penti Isabella DeFronzo James Teague	Benjamin Penti Isabella DeFronzo James Teague Vijay Mistry
2.0 Increased Temperature and Variability of Precipitation in Europe	Isabella DeFronzo James Teague Vijay Mistry	Benjamin Penti Isabella DeFronzo James Teague Vijay Mistry
3.0 Practices Beekeepers Use to Adjust to Changing in Seasonality	Benjamin Penti	Benjamin Penti Isabella DeFronzo James Teague Vijay Mistry
4.0 Methods of Mite Management	Benjamin Penti	Benjamin Penti Isabella DeFronzo James Teague

		Vijay Mistry
5.0 Cultural Differences Between Beekeepers When Adapting to Technology	Benjamin Pentti Vijay Mistry	Benjamin Pentti Isabella DeFronzo James Teague Vijay Mistry
6.0 Utilizing Modern Technology to Improve the Practice of Beekeeping	Benjamin Pentti Vijay Mistry	Benjamin Pentti Isabella DeFronzo James Teague Vijay Mistry
7.0 Key Features of an Application to Combat Unpredictable Seasons	Benjamin Pentti Vijay Mistry	Benjamin Pentti Isabella DeFronzo James Teague Vijay Mistry
Interview Transcriptions		
Interview 1. Heinz Risse - March 22, 2024	Isabella DeFronzo	-
Interview 2. Jonas Geßner - April 10, 2024	Isabella DeFronzo	-
Interview 3. Dr. Tim Landgraf - April 18, 2024	Isabela DeFronzo	-
Conclusion and Recommendations		
Conclusion	James Teague	Benjamin Pentti Isabella DeFronzo James Teague Vijay Mistry
Design		

Booklet	Saida Bahtierova	Team
Presentation	Saida Bahtierova	Team