

Climate Change Risk Assessment (TCFD)

dps pilot study



Contents



1. TCFD



2. Climate Change Risk Assessment - *Brief & dps Scope*



3. Pilot Methodology - *Approach*



4. The Assessment - *Key Findings & Risks*



5. Risk Management - *Mitigation & Diversification*



6. Learnings & Recommendations



Task Force on Climate Related Financial Disclosures

Set up in 2015, Chaired by Michael Bloomberg & Mark Carney (ex gov. bank England)

TCFD recommendations, published in June 2017

- Conduct **scenario analyses** to identify future climate risks and opportunities as well as business financial impacts
- Establish a framework for disclosing climate-related risks and opportunities within mainstream annual financial filings
- Board and audit Committee visibility of the assessment and mitigation/ response to the risks and opportunities
- The results of the analyses and disclosures to cover: (1) Governance (2) Strategy

(3) Risk Management and (4) Metrics & Targets

- Climate risk reporting key focus of the UN COP26 in 2021
- Future mandatory UK climate risk reporting for large businesses indicated in Oct. 21 from Apr.22 onwards (roll out TBC)



2. Climate Risk Assessment: Brief & Scope



dps Pilot: Scenario analysis & scope

2030

Change projection

2 °C

warming
scenario

ACUTE 3.9% ↓
reduction in yield

CHRONIC: 10% ↓
reduction in yield



BERRIES

High risk & UK is an important sourcing region

- Relatively new, ↑ growth category for dps
- South East – Water stressed esp. Medway
- Strategic diversification & innovation



STONE FRUIT

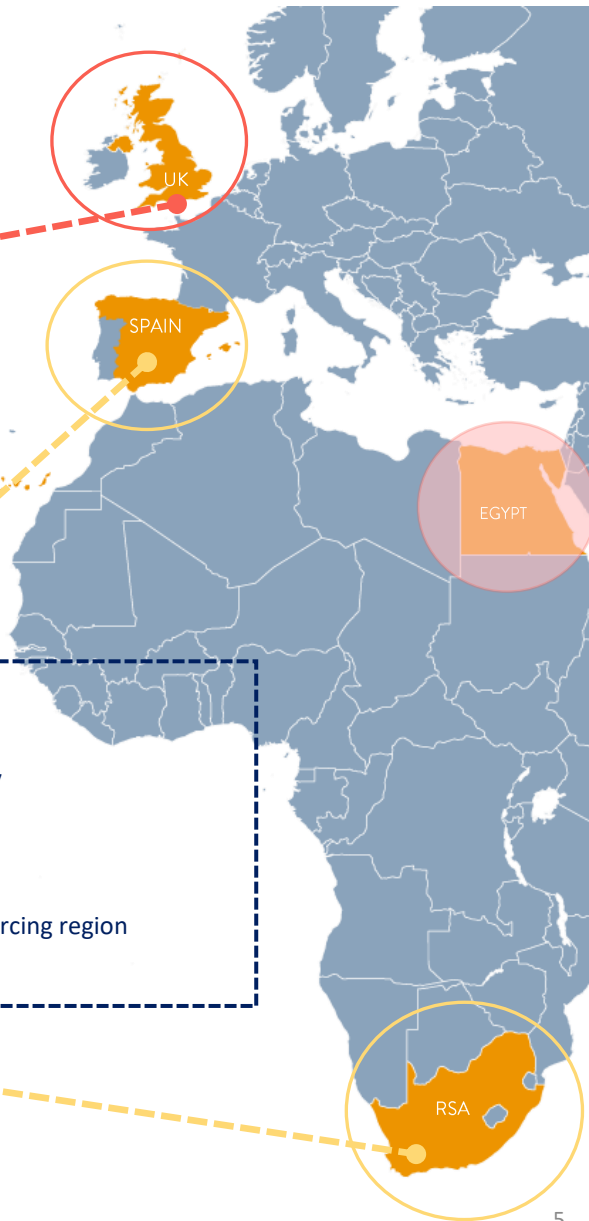
High risk, complex category

NH - SPAIN ↑ VOL + COG

- Murcia – Water stressed
- Key early to mid season sourcing region

SH - SOUTH AFRICA ↑ VOL + COG

- Supply reliant on 3 key Western Cape sub -regions
- Strategic diversification & innovation



3. Pilot Methodology & Approach



Methodology & Approach overview

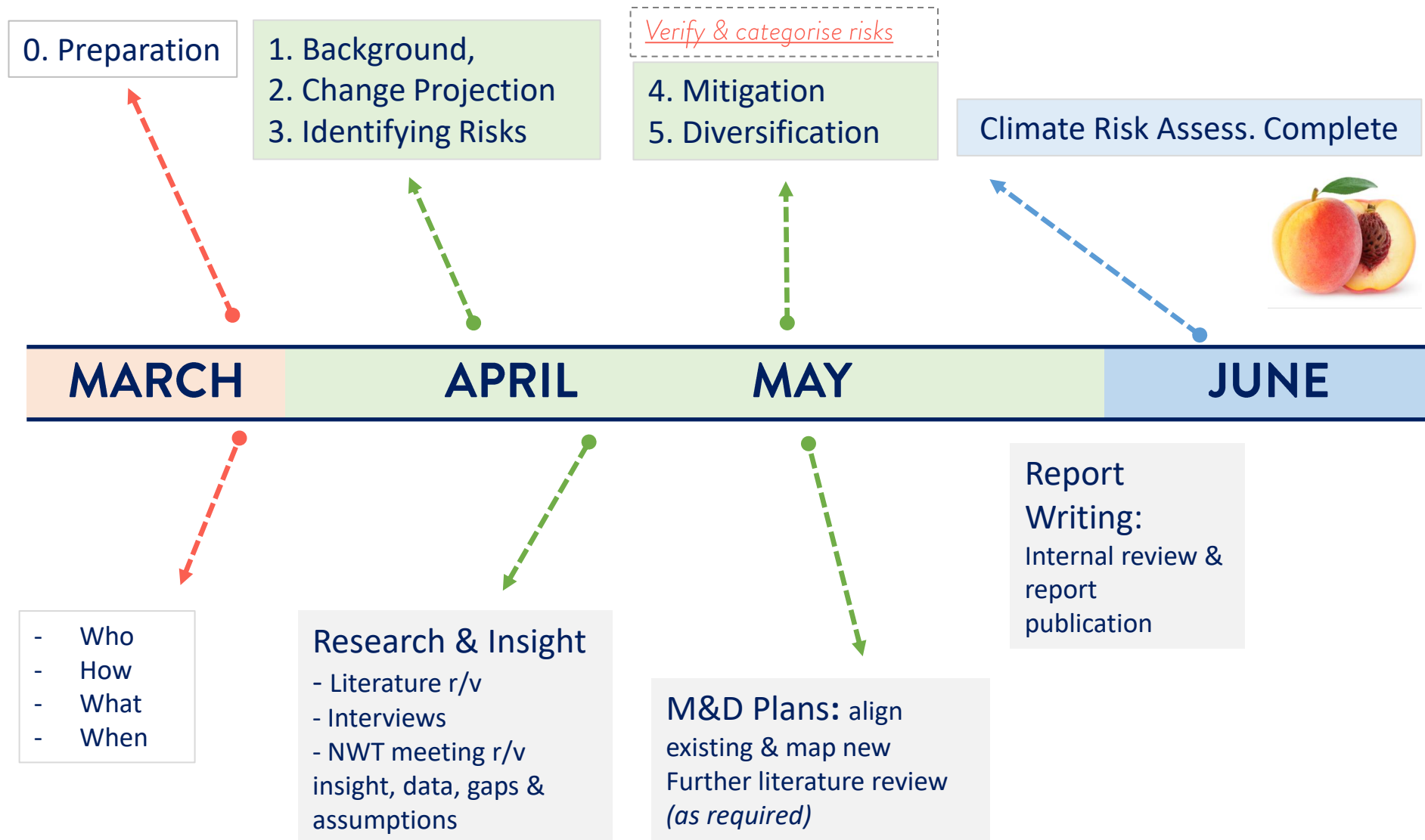
1	PREPARATION What, Who, How, When	- Decide on scope: Supplier, products and regions - Establish & brief NWT: Internal & suppliers - Data gathering questionnaire, interview templates & translations
2	RESEARCH Literature Review External Expert & Supplier Insight	- Background, Change Projection & Identifying Risk - Informal Interviews: NGO's, universities & suppliers
3	ANALYSIS Review of insight from all sources	- Summarise & contextualise key Physical Risks (Acute & Chronic) - Quantify impact - <u>Yield</u> or <u>Cost</u> metric (if available)
4	MITIGATION & DIVERSIFICATION	- Capture, map and review plans <i>Short, medium, long term</i> <i>(Further literature review)</i>
5	REPORT WRITING & PUBLICATION	- Internal NWT review - Final review & feedback

+ Quantification of category seasonal & regional data and impact metrics – Quality, Yield, Cost

Natural Work Team

1	- Technical Director – Decide/ Consult* - Sustainability Dev. Manager – Lead	- Scope, technical resource sign off - Scope, brief internal team, supplier questionnaire, critical path
2	Overseas Satellite Team - Research - Spain x 3, South Africa x 2	- Documentation translation, literature review - Supplier questionnaires & NGO / specialist bodies interviews
3	Sustainability Dev. Manager – Lead	- Literature review, collation of insight and, research gap analysis, report writing - NGO interviews (UK)
ALL- Verify impacts & risks (literature, vs. supplier & sourcing strategy)		
4	- Overseas Satellite Team - Technical Manager - Sustainability Dev. Manager - Procurement Manager	- Quality & seasonality insight, quantify quality impacts - QIP alignment - Sourcing strategy, quantify yield impacts
5	- Commercial Manager - Procurement Manager	Retail strategy insight, data, quantify cost & revenue impacts

Time Line – 4 months



July – August: Internal category mid-season / region review of climate related impacts & metrics₉

Supplier questionnaire



Climate Change Risk Assessment Supplier Questionnaire

Supplier:			
Date:			
Completed by:			
Job Title/Role:			

Please use this template to capture details of on farm climate change risk assessments

Supplier Overview

1	Supplier / Grower Name		
2	Location and region (include GPS location, map and land layout)		
3	Regional breakdown (e.g. name of key sourcing area /town within the region)		
4	Products supplied to dps		
5	Number of farms and or sites		
6	Farm size (hectares)		

1. Background: Details that provide an overview of the growing area

1.1. Economic: Overview of the economy

1	- How is the economy performing nationally and regionally? - What is the GDP and GDP per capita? - What is the capability for public investment in agriculture?
2	- What industries / sectors/ businesses are the biggest contributors to the economy in the region? - Are there any new or emerging sectors/ industries e.g. property or tourism? - What are the biggest markets for fruit farmers in the region? - What proportion of the crop in the region is exported to the UK?
3	- What is the size of the labour force in the region? - What are the unemployment rates?

1.3. Political context: Overview of current political climate, Government support of agriculture and environmental protection

1	- Is the Government in support of Agricultural expansion in the region? - Are there any future elections or events that might present a challenge for growers accessing necessary resources in the region?	
2	Are there any of the sectors or industries in growth likely to compete for local resources?	
3	- What is the national government and local government stance on climate change? - Is there any plan of the region's government to limit the use on phytosanitary products such as pesticides, fertilisers due to environmental problems?	

1.4. Local environmental and labour policies: Overview of national, regional and local policy, laws and restrictions

1	- Who acts to enforce environmental policies on land, water, soil and biodiversity in the region? - What environmental (or other relevant local authority municipality or government) permits do you require to farm in the region? - Do you require water abstraction permits or licences for water use on your farm?	
2	- Are there any policy changes that have or will impact labour in the region/on farm? - What is the risk of worker shortage as a consequence of the COVID-19 pandemic?	
3	- What are the actions taken/ sanctions imposed on water usage during drought or water shortage periods? - Are there any issues related to 'run off' from plant protection products and pollution into nearby streams, rivers or farm waterways or underground reservoir storage in the region? - Are you aware of any changes likely to occur that will restrict access to water in the region?	

4. The Assessment: Key Findings & Risks



Background & Change Projection

Areas Covered

- Economy – contribution to GDP, approx. size of growing area
- Geography – Ecological value, protected areas, water supply
- Political Context – National
- Local Environmental & labour policy – Regional

Source of Data

- WRI Climate watch data
- CCPI
- NGOs - ANSE
- WWF



Identifying Risks

3.1. Physical Risks: Consider what risks your business might face, or have faced, with extreme weather and a change in climate.

CHRONIC

- 1. Low Precipitation & Water Security:** Agriculture accounts for approximately 83-87% of the overall water demand. Due to low precipitation, natural sources meet no more than 50% of the annual water budget, resulting in a significant hydrological deficient and reliance on re-use/desalination. **Impact:** Potential increased capital costs to improve water efficacy through precision irrigation, latest predictive 'smart' fertigation IT, drone technology and physical crop covers to mitigate evaporation and limit transpiration.
- 2. Increased Severity of Floods & Soil Erosion:** Increased frequency of heavy rain fall events in the autumn cause nutrient losses and soil erosion. **Impact:** Potential increase in capital costs to improve on-farm flood resilience through rain water capture and reservoir systems and overheads due to extra labour required to establish and maintain soil cover crop areas.
- 3. Increased Mean Air Temperature:** Climatic warming has markedly altered stone fruit tree phenology over the last 10 years posing a risk to fruit development during the growing cycle. **Impacts:** Potential production losses, accelerated cropping cycles and decreased yield as well as size variability (in the absence of mitigation). Decreased cold accumulation (or chill) hours has the potential to reduce suitability of existing / established varieties in the region resulting in altered and advanced bud-break, flowering and fruit set, which in turn increases vulnerability to damage (i.e. frost, hail, pest and disease), typical season timing and length. During harvest periods, extreme heat may have yield and quality impacts as a result of sun scorching, in some instances stone burn and increased irrigation requirements.
- 4. Pest & Disease:** Higher incidence of pest damage, namely *Thrips frankilia* in the blooming season which, due to higher

CHRONIC

- Warmer winters / late frost
- Low precipitation
 - Pest & Disease
 - Pollination & flowering
 - Soil Erosion

ACUTE

- Extreme Heat
- Storms, hail
- Flash flooding



3.2. Socioeconomic Risks:

- 5. Covid-19 - Impact:** Wider industry reports have estimated 25-30% increase in production costs, due to reduced hourly productivity as a result of social distancing, initially high worker absenteeism rates, reduced migrant labour, transport costs and the implementation of additional/appropriate safety measures.
- 6. Extreme Heat – Health & Productivity:** Globally, an estimated 133.6 billion potential work hours were lost in 2018 due to extreme heat, with outdoor agricultural workers are at greatest vulnerability to heat stroke. **Impact:** Potential increased production costs and yield reduction due to loss in daylight harvesting/work hours in the hottest months.
- 7. Eutrophication & Biodiversity Depletion:** Soil and freshwater pollution, fertiliser use, un-controlled waste water and sanitation networks, run off, flash flooding. **Impact:** Low risk for stone fruit growers/not directly linked to stone fruit production areas, however wider regional and potential reputational risk related to public perception of intensive agriculture soil and ground water pollution and increased incidence of severe storms / flooding culminating in the Mar Menor fish crisis (Oct'19).

Key Impacts: Acute



Erratic
Availability

Erratic
Quality



Reduced
tonnage
/yield

Increased
temp spec
exposure



Early rain
20-30%
yield loss

Cost
Inflation

Hail
20-30%
yield loss



Compounded by: Climate related Issues in contingency and secondary/ complementary COO

Key Impacts: Chronic

Reduced Yield

Availability

Change in seasonal
timing/shorter
regional windows &
season length
uncertainty

+

Quality

Irregular crop profile
vs. existing
specification by tier

=

Revenue

↑ Grower inputs
Cost inflation - GPM
Changes in range/
promotional activity



In the absence of mitigation

5. Risk Management: Mitigation & Diversification



Example Risk Mitigations

- **Water** - Regional Collective Action projects, desalination, drone technology
- **Soil** – Evaporation, cover cropping
- **Pest & Disease** - Targeted biological pesticide control
- **Chronic Temperature** – Predictive modelling, low chill variety stress trials (higher temps than growing region)
- **Extreme Heat/Labour** - automated picking trials



Example Diversifications

- Climate change risks identified and documented
- Product specific risk and sensitivity important
- Labour diversification of the workforce (Covid)
- **Apricot** yield at high risk (warmer winters, lower chill hours)
- New growing region – higher altitude, higher chill hours



6. Learnings & Recommendations



R: Future Scenario Analysis & Scope

Wider Category Lens

- 2030 Growth projections
- By Season
- By Country
- By Product species

Mitigate for The Category

- Wider view of in/out-country M&D plans
- Build into ongoing sourcing strategy
- QIP / variety plans



L: Working through challenges & barriers

What worked well

- **Systematic process** to identify and categorise regional risks and impacts
- **Capturing and gaining visibility** of mitigation and investment plans already in place within the grower base (i.e. long term variety plans focused on eliminating volume / disease threats, regional collective action plans (or lack thereof)
- **Understanding barriers** to and viability of some mitigation plans (i.e. investment in rainwater capture, no of years it takes to trial soil cover/intervention strategies/no of extra people required)
- **Benchmark** how suppliers in the same region are responding to climate change risks/impacts and identify where growers/suppliers may need more support with developing appropriate plans/raising awareness.
- **Alignment** with customer and legislative priorities e.g. TCFD



L: Working through challenges & barriers

What was hard

- Gathering the right level of insight to inform scenario analysis (prior to M&D)
- The research phase requires time and the right level of expertise (internally and grower base)
(applicable to importer model - outside of our 'direct operations')
- Outsourcing costly and found that we had the right level of expertise within the business to complete
(need to build in the time/ resource)
- Timing of grower engagement is critical
(pre/ post season)

Getting over barriers

- Engagement of and alignment with the **commercial team early on is key**
- Developed (and translated Spanish) an internal data gathering tool (research and mitigation planning phase)
- Face to face (virtually), engagement meetings to explain requirements and the 'why'.

