

Optimising Labour in Tomato

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Worldwide Expertise for Food & Flowers

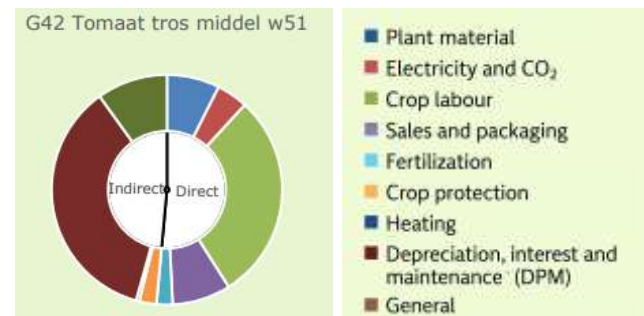
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Labour in Tomato production: Cost Trends

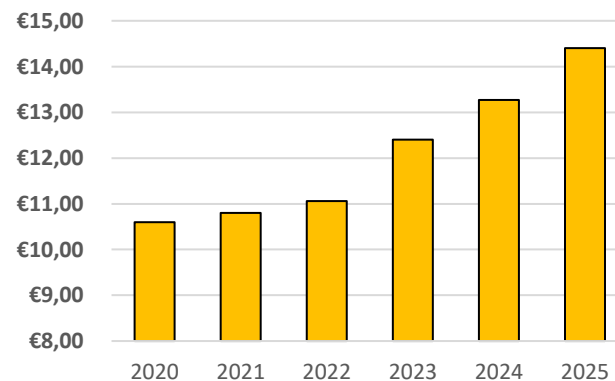
- ✦ Labour as the largest cost component
- ✦ **Labour = 35%** of total cost price



- ✦ **Wages** in NL ↑**20%** past 3 years
- ✦ Labour shortages are driving wages up
- ✦ Expectations future?

- ✦ Labour cost in NL: €18 – 30,- per m²

Minimum hourly wage (gross) for ages 21 and older



Automation: Where We Are Now

- ✦ Packing lines: automated sorting, weighing and labeling
- ✦ Internal logistics: self-driving harvest trolleys



- ✦ Crop labour by Robots? Most situations not viable *yet..*
- ✦ Rising wages + better tech makes more potential

Benchmarking Labour Standards

Cultivation	Hours/m ²	Hours/hectare
Tomato Middle cluster W51	0,81	8075
Tomato Large cluster W42	0,82	8245
Tomato Large cluster Lit W42	0,83	8350
Tomato Beef W49	0,85	8530
Tomato truss small W51	0,96	9583
Tomato Cocktail Lit W40	1,10	11035
Tomato mini plum truss lit W42	1,39	13943
Tomato Cherry Lit W42	1,41	14124
Pepper: Bell pepper red w51	0,57	5651
Pepper: Sweetpoint red w51	0,65	6492
Eggplant	0,65	6515
Cucumber Umbrella (3 plantings)	0,82	8171
Cucumber High Wire (2 plantings)	1,16	11596
Cucumber High Wire Lit (2 plantings)	1,49	14935

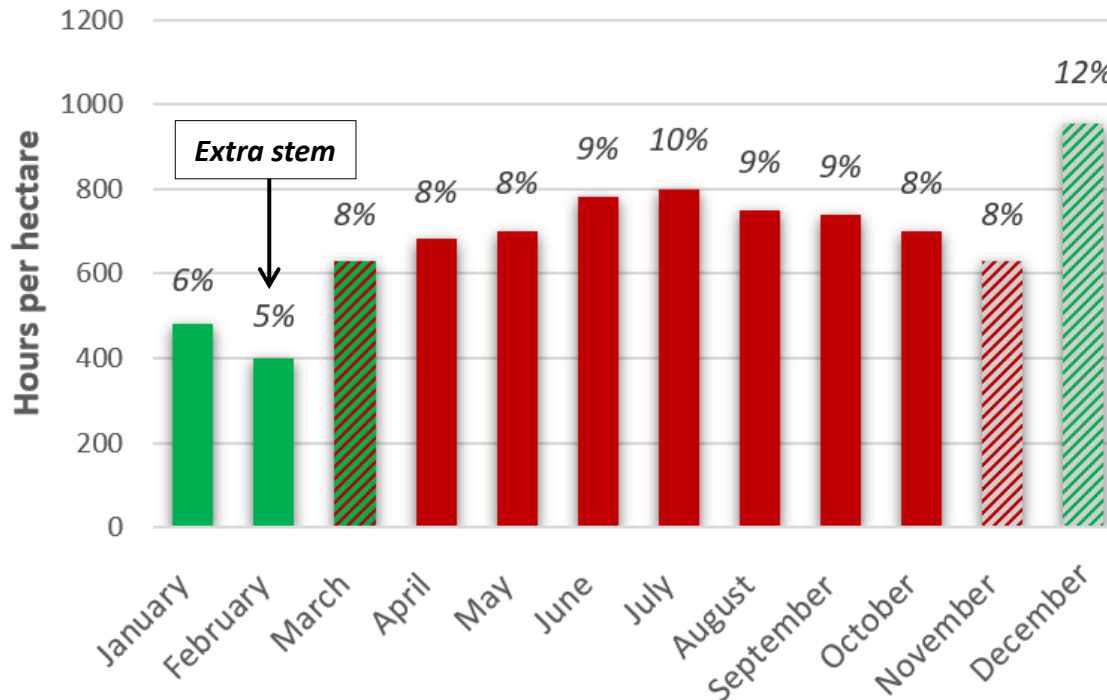


- ✦ **50-week cultivation**
- ✦ **W: week of planting**
- ✦ **Including:** crop labour, planting, harvest, leaf cutting, twisting, lowering, pruning, crop protection labour, sorting etc.
- ✦ **Excluding:** administration, sales, meetings, maintenance greenhouse, transport

Labour per Month

- ✦ Cultivation: Tomato Large Cluster
- ✦ Planting week 51
- ✦ Stem density: 2,5 > 3,75 stems per m2

- ✦ **8245** hours/ha
- ✦ **≈ 4.5 FTE/ha**
- ✦ In practise: **6 FTE/ha**
incl. holidays, illness & flexibility

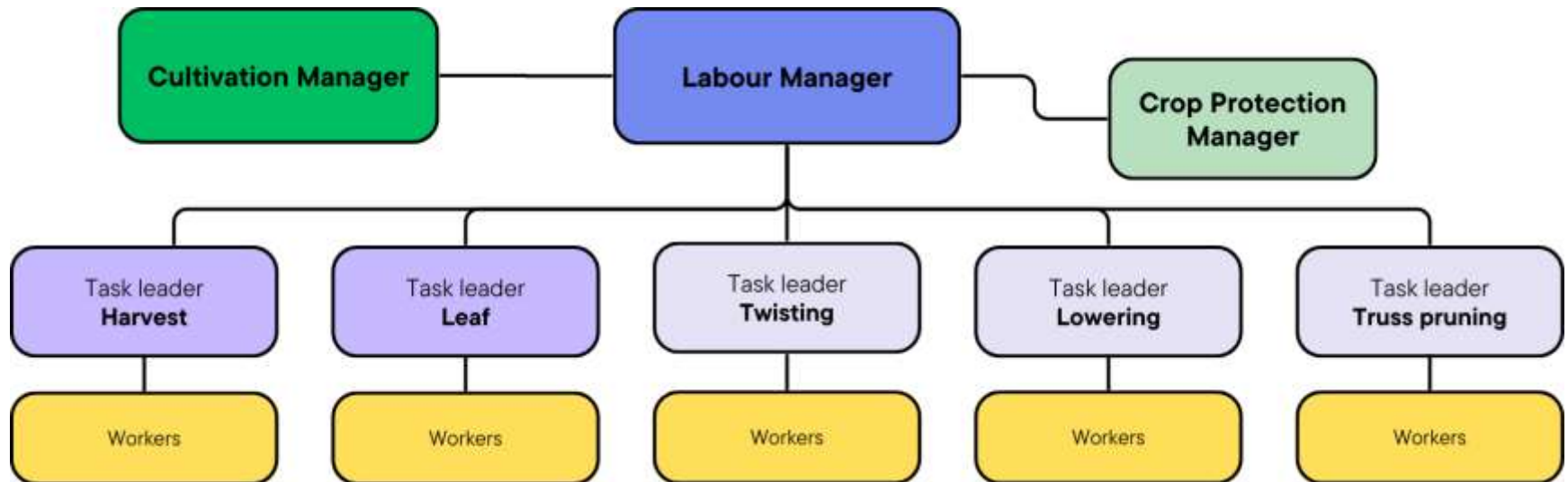


Labour Hours Distribution

✦ Harvesting	22%
✦ Leaf cutting	18%
✦ Twisting	17%
✦ Truss pruning	6%
✦ Lowering	6%
✦ Other	16% (crop protection, sorting etc.)
✦ Crop cycle	15% (removing old crop, cleaning, preparation)



Labour Structure NL Example



- **Start** 7:00
- **Coffee** 9:30 – 9:45
- **Lunch break** 12:30 – 13:00
- **Finish** 15:30

Registration of Labour to improve!



- ✦ Labour registration is the first step to improve!
- ✦ **Systems:** Nitea, Priva FS Performance, Ridder Productive. Gremon Systems
- ✦ **Purpose:** track hours, productivity per person
- ✦ Able to set standards and improve!

- ✦ **Weekly quality checks** by labour manager → scored → affects **bonus**

Training New Employees

✦ **Onboarding Protocol**

- Hygiene procedures
- Safety instructions
- Explanation of labour registration



✦ **Language** matters! → Involve someone that speaks the language

✦ **Training Plan:** new staff should be able to match labour standard within 3-5 weeks

✦ **Set clear expectations:** explain standard output per task

✦ Track progress and **give feedback**

✦ Bonus

1/6 Harvest

Important:

- ✦ **Harvest stage:** colour, ripeness
- ✦ Remove waste
- ✦ **No damage** to fruit
- ✦ **Cut clean:** no stubs
- ✦ Careful placement

→ Disinfect after every row

Standards:

Large cluster: 450-500 kg/hour
Cocktail: 240-290 kg/hour
Cherry: 100-130 kg/hour



Box or crate size influences the labour times

1/6 Harvest

How to improve?

- ✦ **Tools:** Ergonomic harvest trolleys
- ✦ **Tools:** Use sharp scissors
- ✦ **Minimise walking:** Keep new trolleys nearby
- ✦ **Minimise** handling steps, directly in box



- ✦ Cluster: Last 5 weeks for end of cultivation → leave stubs
- ✦ Loose: last 10 weeks for end of cultivation → leave truss stem

2/6 Leaf cutting

Important:

- ✦ **Cut clean**, no stubs
- ✦ **Also cut shoots**
- ✦ **Clean, sharp tools** → disinfect after every row



Standards: +/- 1100 plants/hour

2/6 Leaf cutting

How to improve?

- ✦ **Tools:** Clean and **sharp** knives, easy to handle
- ✦ Rather **3** leaves out than 2
- ✦ Use both hands: cut with one, leaf handling with the other



- ✦ Time-saving tip: young plants breaking leaves at start cultivation

3/6 Twisting

Important:

- ✦ **Support the stem**, avoid squeezing trusses
- ✦ **Taking shoots** out
- ✦ Avoid breaking heads
- ✦ Leaf out the head → saves time on leaf cutting!



Standards: 1100 heads per hour

- ✦ Some varieties: combine with truss pruning: 570 heads per hour
- ✦ NL: Often by freelance workers, subcontractors

3/6 Twisting

How to improve?

- ✦ **Trolley:** use one speed setting, ergonomic height
- ✦ Practice makes flow
- ✦ Set targets and track!

Ringing/Clipping

- ✦ Easy to learn – especially for new workers
 - ✦ Lower risk of stem breakage
 - ✦ Can be faster, if done as separate task
-
- Higher material cost, non-recyclable or biodegradable
 - Difficult to disinfect – hygiene risk



4/6 Truss Pruning

Important:

- ✦ Correct number of **fruits per truss**, manage your desired **plant load**
- ✦ No stubs at the truss end
- ✦ Remove king fruit and leaves on truss

Truss support:

- ✦ Only if necessary
- ✦ Position close to main stem for stability

Standards: +/- 1875 trusses per hour



4/6 Truss Pruning

How to improve?

- ✦ **Trolley:** use one speed setting, ergonomic height
- ✦ Use well-fitting gloves
- ✦ **Don't overthink**
- ✦ Truss support affects speed



5/6 Lowering

Important:

- ✦ Lowering sets the ergonomic height for harvest & leaves – plan it well!
- ✦ Keep plant height consistent, uniform spacing
- ✦ Avoid dropping the plants. Trusses can snap/bend

Standards:

Lowering 0,5 turn +/- 2800 plants per hour

Lowering 1,0 turn +/- 1700 plants per hour

Big differences between tomato varieties



5/6 Lowering

How to improve?

- ✦ **Trolley:** use one speed setting, ergonomic height
- ✦ Lowering preferably 1,0 turn
- ✦ Use both hands!
- ✦ Lowering is key for other jobs



- ✦ At 1,0 turn: plant direction matters → Right: hook in right hand (most people are right-handed!)

6/6 Crop Cycle

- ✦ Proper **crop cycle** is **key!**
- ✦ ~12–15% of total labour hours

- 1. Crop removal**
- 2. Cleaning**
- 3. Disinfection**
4. Preparation new planting
5. Planting

What we see in NL

- ToBRFV total labour hours has not increased significantly
- More focus on crop cycle planning, hygiene rules, cleaning agents



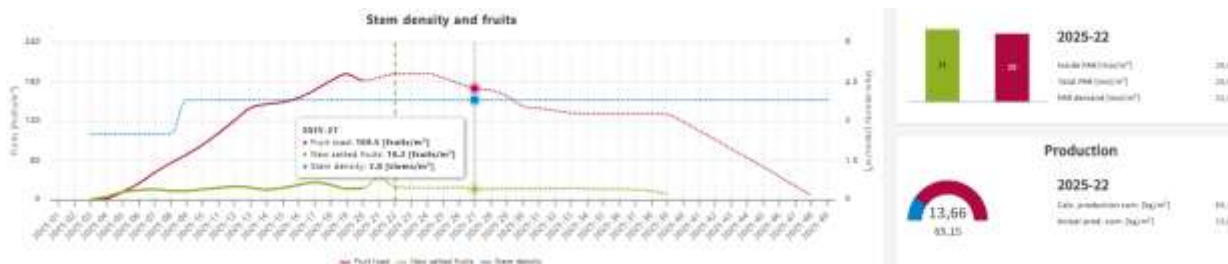
Improving Labour Times; key factors

- ✦ Starts with **labour registration**
- ✦ **Set clear standards** tailored to your crop
- ✦ **Communicate expectations** – what is expected per task
- ✦ **Appoint task leaders** → look how people work
- ✦ **Work order**: Lowering → leaf cutting → harvesting
- ✦ **Avoid overcomplicating** – minimize distances
- ✦ **Clean** work paths and fast trolley flow
- ✦ **Stick to your schedule**

- ✦ **Hygiene** is essential – takes seconds, prevents major problems.
- ✦ **Work direction** is crucial!

Labour Strategy: Long Term

- ✦ Create a **positive workspace** for people!
- ✦ **Crop steering**: uniform, generative crop – better quality, less waste, and less labour
- ✦ **Varieties**: big influence on labour (generative, easy to twist, fruit weight)
- ✦ **Stems per m2**: More stems = more labour
- ✦ Lowering **stem density?** → **QMS**



Conclusion

- ✦ Labour is a major cost - but key to optimisation
- ✦ Track performance, set clear standards, give feedback
- ✦ Planning and assign clear roles



- ✦ Workers are often not slow – just inefficient
- ✦ Result of well managed labour = Quality!



 **Need Support with Labour or Crop Strategy?**
→ Feel free to contact us!

Köszönöm a figyelmet!



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